VOL. 34 No. 1 pp. 1–104

JANUARY 1959

BULLETIN OF HYGIENE

<46-47>

64 (scle

CONTENTS

Public Health 1
Maternal and Child Health ... 2
Health of Nurses, Students and Hospital Staff 6
Care of Old Persons and the Chronically Ill 7
Vital Statistics and Epidemiology 8
Infective Diseases 10
Tuberculosis 33
Venereal Diseases 41
Zoonoses 42
Diseases due to Fungi 44
Heart Disease 46
Cancer 46
Occupational Hygiene 48
Atmospheric Pollution 65
Physiology as applied to Hygiene 66
Sanitation 66
Food and Nutrition 69
Bacteriology and Immunity ... 73
Miscellaneous 103
Book Reviews 103

For detailed Contents see p. ii

BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET · LONDON W·C·I
Telephone : MUSeum 3041

PRICE 10/6

Annual Subscription (Jan.-Dec.) £5 ($14)

HONORARY MANAGING COMMITTEE

APPOINTED BY THE SECRETARY OF STATE FOR THE COLONIES

Chairman: A. M. Wilson Rae, *C.M.G.*, M.D.
(*Chief Medical Officer, Colonial Office*)
Brigadier Sir John Boyd, *O.B.E.*, LL.D., M.D., F.R.C.P., D.P.H., D.T.M. & H., F.R.S.
(*representing the Royal Society*)
Sir John Charles, *K.C.B.*, M.D., F.R.C.P., D.P.H. (*representing the Ministry of Health*)
Sir Harold Himsworth, *K.C.B.*, M.D., F.R.C.P., F.R.S. (*representing the Medical Research Council*)
Sir Wilson Jameson, *G.B.E.*, *K.C.B.*, M.D., F.R.C.P.
Sir James Kilpatrick, *K.B.E.*, *C.B.*, LL.D., M.B., D.P.H.
Professor G. Macdonald, *C.M.G.*, M.D., F.R.C.P., D.P.H., D.T.M.
Sir Philip Manson-Bahr, *C.M.G.*, *D.S.O.*, M.D., F.R.C.P., D.T.M. & H.
E. R. A. Merewether, *C.B.*, *C.B.E.*, M.D., F.R.C.P., F.R.S.E.
J. B. Sidebotham, *C.M.G.*, M.A.
J. S. Bennett, *C.M.G.* (*of the Colonial Office*)
Secretary: A. J. Somerton, *M.B.E.* (*of the Colonial Office*)

STAFF OF THE BUREAU

Charles Wilcocks, *C.M.G.*, M.D., F.R.C.P., D.T.M. & H., *Director*
H. J. O'D. Burke-Gaffney, *O.B.E.*, *O.St.J.*, B.A., M.D., *Assistant Director*
Arthur H. Phipps, B.Com., *Secretary*
Joan E. D'Arcy Hart, *Assistant Secretary*

Betty Baldwin
Peggy Carolan
Nancy Fortescue
Frederick W. Norfolk
Margaret Weight
Brenda White

LIST OF CONTRIBUTORS IN THIS ISSUE

P. Armitage, M.A., Ph.D.
H. Stanley Banks, M.A., M.D., F.R.C.P., D.P.H.
D. J. Bauer, Ph.D., M.B., B.Chir.
A. John Beale, M.D., Dip.Bact.
Thomas Bedford, D.Sc., Ph.D.
Sir Samuel Bedson, M.D., D.Sc., F.R.C.P., F.R.S.
Professor C. Fraser Brockington, M.A., M.D., D.P.H.
S. R. M. Bushby, M.Sc., Ph.D.
H. G. Calwell, B.A., M.D., D.T.M. & H.
P. J. R. Challen, M.R.C.P.
E. A. Cheeseman, B.Sc., Ph.D., F.S.S.
A. B. Christie, M.A., M.D., D.P.H.
P. A. Clearkin, *O.B.E.*, M.D.
A. L. Cochrane, *M.B.E.*, M.A., M.B., B.Ch., D.P.H.
S. T. Cowan, D.Sc., M.D., M.R.C.S., L.R.C.P.
Sir Allen Daley, LL.D., B.Sc., M.D., F.R.C.P., D.P.H.
C. N. Davies, D.Sc.
Professor M. E. Delafield, *M.C.*, M.B., B.Ch., D.P.H.
Richard Doll, *O.B.E.*, D.Sc., M.D., F.R.C.P.
W. K. Dunscombe, M.D., D.P.H., D.T.M. & H.
J. McK. Ellison, B.A., Ph.D.
T. O. Garland, M.A., M.D., D.P.H.
Professor L. P. Garrod, M.D., F.R.C.P.
R. S. F. Hennessey, *C.M.G.*, M.D., F.R.C.P.I., Dip.Bact., D.T.M. & H.
I. T. T. Higgins, M.D., M.R.C.P.
Professor A. Bradford Hill, *C.B.E.*, D.Sc., Ph.D., F.S.S., F.R.S.
Derek Hobson, M.D., M.R.C.S.
Colin Kaplan, M.Sc., M.B., Ch.B.
J. Knowelden, M.D., D.P.H.
Claude Lillingston, M.D.
Miss Sheila McDonald, M.B., Ch.B.
Professor J. W. McLeod, Sc.D., M.B., Ch.B., F.R.S.
J. Pickford Marsden, M.D., D.P.H.
W. J. Martin, D.Sc., Ph.D.
Andrew Meiklejohn, M.D., M.R.C.P., D.P.H.
B. Moore, B.Sc., M.D.
J. Nagington, M.D., Dip.Bact.
John R. Norris, B.Sc., Ph.D.
T. E. Osmond, B.A., M.B.
H. G. Pereira, M.D.
F. T. Perkins, M.Sc., Ph.D.
Professor A. Policard.
A. B. Raper, M.D., D.T.M. & H.
D. D. Reid, Ph.D., M.D., M.R.C.P.
Miss M. E. Rowatt, Ph.D.
Professor S. Russ, *C.B.E.*, D.Sc.
C. E. Gordon Smith, M.D.
Mrs. Janice Taverne, B.A., Ph.D.
E. Windle Taylor, M.D., D.P.H.
Robert Thomas, B.Sc., Ph.D.
M. L. Thomson, Ph.D., B.Sc., M.B., Ch.B.
Mrs. Morag C. Timbury, M.B., Ch.B.
B. B. Waddy, D.M., D.P.H.
Mrs. Jacqueline Walker, Ph.D.
Robert Weaver, M.D., D.P.H., F.D.S.
Miss Cicely D. Williams, B.A., M.D., F.R.C.P., D.T.M. & H.
R. E. O. Williams, B.Sc., M.D.
H. T. H. Wilson, M.A., M.D., B.Chir., M.R.C.P.
F. H. Young, *O.B.E.*, B.A., M.D., F.R.C.P., D.P.H.

Erwinia Chrysanthemi:
A plant pathogen causing Stem Rot in Chrysanthemums and Soft Rot in fleshy vegetables

a cure for chrysanthemums

When your business is selling Chrysanthemums, Stem Rot can be disastrous. Faced with this menace a certain large firm of growers turned to us. The problem was to isolate infected cuttings early enough to prevent cross infection in the Nursery.

Now, in this one business alone upwards of a million cuttings a year are being laboratory tested in Oxoid Culture Media before rooting, to eradicate infected stock.

FOR PROGRESSIVE LABORATORIES **OXOID** REGD. TRADE MARK **CULTURE MEDIA**

The use of Oxoid Culture Media ensures constant quality and uniformity in your laboratory technique. Absolutely reliable, quick, convenient and economical, Oxoid Culture Media are available in tablet or granular form. Full details from:

OXOID DIVISION OF OXO LTD., Thames House,
Queen Street Place, London, E.C.4 (CENtral 9781)

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- **Public Health Administration**
- **Social Services**
  - **Maternity and Infant Welfare**
  - **Childhood and Adolescence**
  - **Health of Nurses, Students and Hospital Staffs**
  - **Care of Old Persons and the Chronically Ill**
  - **Social Medicine**
- **Vital Statistics and Epidemiology**
- Communicable Diseases
  - (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene and Toxicology
- **Atmospheric Pollution**
- **Occupational Psychology**
- **Physiology as Applied to Hygiene**
- **Port, Ship and Aviation Hygiene**
- **Hygiene of Buildings**
- **Sanitation**
- **Infestation, Disinfestation and Disinfection**
- **Nutrition**
- **Bacteriology and Immunity**

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- Tropical Bacterial Diseases
  - (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- **Other conditions related to warm climates**
- **Bacteriological, Entomological, Protozoological papers related to these diseases**

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Bank House, 3 Whitecross Street, Monmouth.

CONTENTS

PUBLIC HEALTH

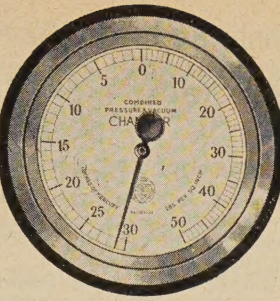
PAGE
BACKER ... ... Health System and Medical Profession in Denmark 1
STEUART, MEHARCHAND, JOHN & GAJADHUR ... ... Education in Sanitation; Indian Community in S. Africa ... 1

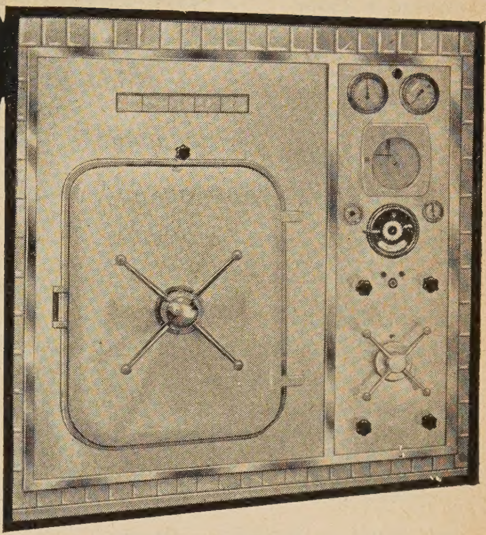
MATERNAL AND CHILD HEALTH

LAMBILLON ... ... Development of Obstetric Problems in Léopoldville, Belgian Congo 2
MACGREGOR ... ... Paediatrics in W. Nigeria 2
KAHN, WAYBURNE, SHNIER, STEIN, CRONJE, FREIMAN, LEVIN, ORSKA, REEF & THEUNISSEN ... ... 10 Years of Bantu Paediatrics 3
SLONE, LEVIN & ORSKA ... ... Hypertonic Dehydration in Infants 3
GEPPERT ... ... Composition of Paediatric Practice at Permanent Army Base in Antibiotic Era 4
DAVIES & MILLS ... ... Young Mothers in Singapore 5
MONTHLY BULL. MIN. OF HEALTH & PUB. HEALTH LAB. SERVICE ... Sudden Death in Infancy 5
SIMON ... ... Infections in First Year of Life 5
WALLACE, HARTMAN, WECKWERTH & DAVIS ... ... Health Problems of Infants and Pre-School Children ... 6

HEALTH OF NURSES, STUDENTS AND HOSPITAL STAFFS

BARR ... ... Hospital Size and Staff Sickness Rates 6





HIGH PRESSURE HIGH VACUUM

Hi Speed

Manloves

STERILIZING

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE: 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 5931-2

BOOKS ON HYGIENE

H. K. LEWIS & Co. Ltd. can supply all Standard Works and Textbooks on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request.

MEDICAL AND SCIENTIFIC LIBRARY

Annual Subscription from £1 17s.6d.

The Library includes all standard and recent works in all branches of Hygiene and Sanitary Science. **Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

THE LIBRARY CATALOGUE revised to December 1956, containing a classified Index of Authors and Subjects. £2 2s. net; postage 2s. To subscribers to the Library, £1 5s.; postage 2s.

SECONDHAND DEPARTMENT

A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1
Telephone: EUSton 4282. Telegrams: Publicavit, Westcent, London
Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

PAGE
Amulree ... Hospitals and Domiciliary Services ... 7
Geffen & Tracy ... Welfare Clinic Services for Ageing ... 7
Chalke, Dewhurst & Ward ... Loss of Sense of Smell in Old People ... 7

VITAL STATISTICS AND EPIDEMIOLOGY

Kerridge ... New Method of Standardizing Death Rates ... 8
Kendall ... Neonatal Mortality in Philadelphia ... 8
Knox & Mackintosh ... Post-Neonatal Infant Mortality in Birmingham, 1947–56 ... 8
Barr ... Extent of Hospital Sickness ... 8
Ministère De La Santé Publique Statistics on Epidemiology of Enteric Fever, Poliomyelitis and Brucellosis in France, 1954–5 ... 9
Ministère De La Santé Publique Regional Pathology of France. I. South and West ... 10

COMMUNICABLE DISEASES

Infective Diseases

Fisher & Manning ... Immunotherapy of Bacterial Infections. I. Comparative Effectiveness of Human γ-Globulin against Various Bacterial Species in Mice ... 10
Adamczyk & Kassur ... Diphtheritic Croup ... 10
Adamczyk, Rusinowa Wołodko & Kucharska ... Influence of Vaccination on Clinical Course of Diphtheria ... 11
Breese & Disney ... Penicillin in Treatment of Streptococcal Infections ... 11
Barber & Dutton ... Antibiotic-Resistant Staphylococcal Outbreaks in Medical and Surgical ward ... 11
Nestoresco, Popovici, Palade, Novac, Alexenco, Cheptea, Cociaşu & Stoica ... Clinical and Epidemiological Relations of Staphylococcal Infections in Children's Hospital ... 12
Manoliu, Bustea, Brailoiu & Stefanesco ... Staphylococcal Epidemic in Maternity Unit and Newborn Department ... 12
Cheng & Liu ... Incidence of Antibiotic-Resistant Staphylococci in Children's Hospital ... 12
Smith ... Role of Chronic Carrier in Epidemic of Staphylococcal Disease in Newborn Nursery ... 12
Calvy ... Report on Action against *Staphylococcus* in Naval Hospital 12
Šebek, Schubert & Johanovký ... Immunological Prevention of *Staphylococcus* Infection of Mothers and Newborns ... 13
Adams, Imagawa, Chadwick, Gates & Siem ... Relationship of Measles and Distemper ... 13
Roberts & Bain ... Pathology of Measles ... 13
Papp ... Immunology of Measles ... 13
Overman ... Viraemia in Human Mumps Virus Infections ... 14
Fazekas De St. Groth, Graham & Jack ... Serology of Mumps Infections. I. New Source of Antigen and Simplified Complement-Fixation Test ... 14
Tucker & Overman ... Size of Mumps Skin Test Reactions ... 14
Adonajło ... Epidemiological Features of Whooping Cough in Leningrad, 1953–55 ... 14
Purpura ... Epidemic Episode of Smallpox in Naples ... 15
Herrlich ... Variola: Epidemic in Bombay in 1958 ... 15
Cockshott & MacGregor ... Osteomyelitis Variolosa ... 16
Peirce, Melville, Downie & Duckworth ... Antivaccinal Gamma-Globulin in Smallpox Prophylaxis ... 16
Cross, Kaplan & McClean ... Dried and Glycerinated Smallpox Vaccines of Full and Diminished Potencies ... 17
Espmark ... Vaccination against Smallpox ... 17
Foerster & Scott ... Isolation of Herpes Simplex Virus from Patient with Erythema Multiforme Exudativum ... 17
Proc. Roy. Soc. Med. ... Virus Infections of Upper Respiratory Tract ... 17
McDonald, Wilson, Thorburn, Holland & Andrews ... Acute Respiratory Disease in RAF, 1955–7 ... 17
Loosli, Hamre & Warner ... Asian A Influenza in Naval Recruits ... 18
Mulder, Masurel & Hers ... Asian Influenza Pandemic ... 18
Raška, Pečenka, Radkovský, Roudný & Tůmová ... Epidemiology of Influenza in 1957 ... 18
Keogh, Ferris, Lewis & Stevenson Serological Survey of Epidemic of Asian-Type Influenza in Melbourne, 1957 ... 18
Glazier ... Effect of Immunization against Influenza on Epidemic of Respiratory Illness in Children ... 19
Bayne, Liu & Boger ... Asian Influenza Vaccine ... 19

SCHOOL OF HYGIENE
UNIVERSITY OF TORONTO
TORONTO, CANADA

DIRECTOR: A. J. RHODES, M.D., F.R.C.P.(Edin.), F.R.S.C.

COURSES IN PUBLIC HEALTH AND BACTERIOLOGY, FOR PHYSICIANS AND OTHER UNIVERSITY GRADUATES

The School of Hygiene, founded in 1927, offers courses of instruction preparing candidates for the following Diplomas of the University of Toronto:

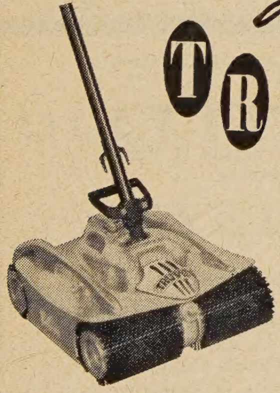
Diploma in Public Health (D.P.H.)—*for physicians*
Diploma in Industrial Health (D.I.H.)—*for physicians*
Diploma in Veterinary Public Health (D.V.P.H.)—*for veterinarians*
Diploma in Dental Public Health (D.D.P.H.)—*for dentists*
Diploma in Hospital Administration (Dip.H.A.)—*for physicians and other university graduates*
Diploma in Bacteriology (Dip.Bact.)—*for physicians and other university graduates.*

Courses commence September 11, 1959. All courses extend over one academic year, except the Dip.H.A. course, which lasts for two years, the second year being spent as a resident in hospital administration.

Overseas candidates should consult their governments about Fellowships for study in Canada.

Silence is Golden!

TRUVOX



FLOOR POLISHER/ SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:
TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

"VISIJAR" respectfully request you to add the following items to their 1956 price list.

I.C.I. TENSOL CEMENT No. 7

Each pack contains 16 fl. ozs. of monomer and sufficient catalyst to make a 1–16 solution which thoroughly mixed and evacuated will polymerise at room temperature. Ideal for dough jointing and solid block embedding.

MUSEUM BOX MAKING

We now supply "PERSPEX" ready machined for fabrication at a reasonable charge of 1s. 6d. per square foot extra to our published price of each thickness. Lids and bases should be slightly greater in area to allow for thickness tolerance of side panels.

THE "VISIJAR" MUSEUM BOX ready for use is still made to your requirements in ever increasing numbers in both 5 panel and "U" form.

Price list on application

THE VISIJAR LABORATORY SUPPLY CO. LTD.
149, LONDON ROAD, CROYDON, SURREY
Croydon 8228/9

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

		PAGE
Stefanini, Piomelli, Mele, Ostroski & Colpoys	Acute Vascular Purpura following Immunization with Asiatic Influenza Vaccine	19
Stovin	Sporadic Acute Respiratory Infections in Adults	19
Graham	Laboratory Study of Laryngo-Tracheo-Bronchitis in Children in Melbourne (1956)	19
Evans	Adenovirus Infections in Children and Young Adults	20
Loosli, Tipton, Warner, Smith, Johnston & Hamre	Adenovirus Vaccine Evaluation Study in Naval Recruits	20
DeMeio & Walker	Sendai Virus Antibody in Acute Respiratory Infections and Infectious Mononucleosis	20
Dowling, Jackson, Spiesman & Inouye	Transmission of Common Cold to Volunteers. III. Effect of Chilling of Subjects upon Susceptibility	20
Ritchie	Autogenous Vaccine in Prophylaxis of Common Cold	21
Ritchie	Antibiotics in Small Doses for Common Cold	21
Ritchie	Control of Common Cold	22
Buchanan, Buchanan, Melrose, McGuiness & Price	Long-Term Prophylactic Administration of Tetracycline to Chronic Bronchitics	22
Clark, Sachs & Williams	Outbreak of Infectious Hepatitis on College Campus	22
Ziai & Haggerty	Neonatal Meningitis	22
Parker	Spread of Poliomyelitis in Brighton in 1957	23
Miles, Austin & Caughey	Development of Homologous Neutralizing Antibody during Type 1 Poliomyelitis Epidemic	23
Pavlatou	Examination of Greek Population for Presence of Neutralizing Antipolio Antibodies	23
Shaw, Sunada & Hopkey	425 Idaho Poliomyelitis Vaccine Recipients, 1955	24
Sunada, Gerloff, Brock, Hopkey, Eklund & Klotz	Potency and Safety of Poliomyelitis Vaccine (Salk Type) currently used	24
Martins Da Silva, Prem, Johnson, McKelvey & Syverton	Response of Pregnant Women and their Infants to Poliomyelitis Vaccine	24
Bull. Acad. Nat. Méd.	Immunization and Vaccination against Poliomyelitis	25
Wohlrab, Anz & Höpken	Poliomyelitis Immunity and Efficacy of Salk-Type Vaccine in 1957 Campaign in Lower Saxony	25
Petzelt	Progress of Poliomyelitis Vaccination in Lower Saxony	25
Eklund, Bell & Gerloff	Poliomyelitis in Idaho after Use of Live Virus Vaccine	25
Tyrrell, Lane & Snell	Epidemic of Exanthem associated with Aseptic Meningitis	26
Johnsson, Lycke, Wictorin & Jönsson	Epidemic of Aseptic Meningitis in Association with Coxsackie and ECHO Viruses. II. Serological and Clinical Observations	26
Berglund, Böttiger, Johnsson & Westermark	Outbreak of Aseptic Meningitis with Rubella-Like Rash; probable cause ECHO Virus Type 9	26
Johnsson, Böttiger & Löfdahl	Outbreak of Aseptic Meningitis with Rubella-Like Rash probable cause ECHO Virus Type 4	27
Möbus, Potel & Hlawatsch	Infection by Coxsackie Virus with particular reference to Herpangina	27
Javett, Heymann, Mundel, Pepler, Lurie, Gear, Measroch & Kirsch	Myocarditis in Newborn Infant. Coxsackie Group B Virus Infection in Maternity Home in Johannesburg	27
Suckling; Vogelpoel; Simenhoff; Uys; Naudé; Selzer; Kipps; Don; Cooper	Coxsackie Virus Myocarditis of Newborn	28
Sabin, Krumbiegel & Wigand	ECHO Type 9 Virus Disease	29
Kibrick & Enders	Disease due to ECHO Virus Type 9 in Massachusetts	29
Frothingham	ECHO Virus Type 9	30
Škvaril & Slonim	Antibody Content against Virus of Czechoslovak Tick-Borne Encephalitis in Rivanol Gamma-Globulin and Ethanol Subfraction II and III of Convalescent Human Plasma	30
Nabokov, Laryukhin, Tarabukhin, Chumak & Chigirik	Control of Vectors of Tick-Borne Encephalitis in Kemerovo Region, 1955–7	30
Gresser, Hardy, Hu & Scherer	Transmission of Japanese B Encephalitis Virus by Colonized Strain of *C. tritaeniorhynchus* Giles from Infected Pigs and Chicks to Susceptible Pigs and Birds	30
Hammon, Tigertt & Sather	Epidemics of Japanese B Encephalitis and of Mumps on Guam, 1947–8	31
Perari	Typhoid-Paratyphoid Infections in Perugia, 1939–54	31
Horn	Epidemiology of Typhoid and Paratyphoid, 1945–56	31
Havlìk & Potužnik	Levels of Complete and Incomplete O(9,12) Antibody during Chloramphenicol Treatment of Typhoid Fever	32
Giglioli	20 Fatal Cases of *Salm. paratyphi C.* Infection in British Guiana	32

BACK ISSUES OF THE

Tropical Diseases Bulletin
AND
Bulletin of Hygiene

WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

Photocopying

equipment designed
specially for
extracts from
PERIODICALS
& BOOKS

●

copies in 40 seconds
by "transfer" method

●

fully portable
for personal or
departmental use

CONTOURA Photocopiers make certain of getting perfect contact on bound pages by the use of an air-filled translucent cushion which naturally adapts itself to a curve when necessary. Three sizes of CONTOURA available — Quarto, Foolscap and Double-Foolscap — For example :

"FOOLSCAP" CONTOURA - £18 BASIC, TO £30 WITH CASE, TIMER, etc.
CONSTAT PROCESSOR - £20

Ask us for a demonstration.

CONTOURA PHOTOCOPYING LTD.
56 Islington Park Street, London, N.1. (Can. 7900)

OCCUPATIONAL
HYGIENE
ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE AND TOXICOLOGY
ATMOSPHERIC POLLUTION
OCCUPATIONAL PSYCHOLOGY
PHYSIOLOGY AS APPLIED TO HYGIENE
HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER)
including Index 30/– ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET · LONDON W·C·1 *TELEPHONE: MUSeum 3041*

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

PAGE

Miller & Freedman ... Enteritis Epidemic ... 32
Hopkins ... Outbreak of Epidemic Vomiting ... 33

Tuberculosis

Lindig ... Tuberculosis as Occupational Disease ... 33
Springett, Adams, D'Costa & Hemming ... Tuberculosis in Immigrants in Birmingham, 1956–7 ... 33
Watson ... X-Ray Examination of Teachers in Edinburgh ... 34
Petersen ... Tuberculous Infection among Schoolchildren in Poor Environment ... 34
Härö & Pätiälä ... Tuberculosis Mortality and Morbidity in Finland, 1900–56 ... 35
Varpela ... Influence of Migration upon Tuberculosis in Cities. Distribution according to Birth-Place of Tuberculosis Mortality in Helsinki, 1949–52 ... 36
Fovino ... 2 Tuberculous Episodes ... 36
Kleinschmidt ... Tuberculosis in Childhood: Diagnosis, Treatment and Prophylaxis ... 36
Hardy; Brailey ... Tuberculosis in White and Negro Children. I. Roentgenological Aspects of Harriet Lane Study. 2. Epidemiological Aspects of Harriet Lane Study ... 37
Lester & Atwell ... Tuberculin Skin Reaction in Active Pulmonary Tuberculosis 38
Cotter, Foreman & Seal ... Pathology and Bacteriology of Resected Tuberculous Lung Lesions after Chemotherapy ... 38
Chu, Chao & Ch'en ... Clinical Significance of Round Foci in Pulmonary Tuberculosis ... 39
Yeh ... Tuberculosis of Breast ... 39
Viallier, Bertoye, Carraz & Courtieu ... Variations in Concentration of Streptococcal Anti-Enzymes in Serum of Normal and Tuberculous Guineapigs ... 39
Bailey ... Pulmonary Tuberculosis in Java and its Treatment with Isoniazid Alone ... 40
Elling & Simon ... Relationship of Family Environment and Results of Treatment of Children and Young Persons with Tuberculosis ... 40
Ford ... Chemotherapy of Tuberculosis in Infants ... 40
Nitschke ... Influence of Adrenal Cortical Hormones on Course of Miliary Tuberculosis ... 40

Venereal Diseases

Beerman ... Problem of Syphilis Today ... 41
Fröhlich ... Progress in Syphilology ... 41
Schneeweiss ... Standardizing Complement-Fixation Reactions ... 41
Felke ... Follow-Up of 286 Patients with Syphilis after Short Course of Penicillin ... 41
Hilleman, Greaves & Werner ... Group-Specificity of Psittacosis-Lymphogranuloma Venereum Group Skin Test Antigens in Lyphogranuloma Venereum Patients ... 41

Zoonoses

Loose ... Brucellosis in Man and Animals ... 42
Neyman, Dawidowska & Wtorkowska ... *Brucella* Infection in Dairy Workers ... 42
Wundt ... Technique and Reliability of Serological Procedures for determining Microorganism Present in *Brucella* Infections 42
Vest & Marchette ... Transmission of *Br. tularensis* among Desert Rodents through Infective Carcasses ... 43
Šebek ... Results of Examination of Free Living Carnivora for Leptospirae ... 43
Šebek & Vošta ... Results of Serological Investigation of Hares for Leptospiroses ... 43
Matumoto *et al.* ... Human Cases of Psittacosis in Japan ... 43
Stern ... Rift Valley Fever in Rhodesia ... 43
Shone ... Rift Valley Fever in S. Rhodesia ... 44

DISEASES DUE TO FUNGI

Proc. Roy. Soc. Med. ... Diseases due to Fungi ... 44
Chuckerbutty ... Multifungin: New Antimycotic Drug ... 44
Vanbreuseghem ... Tinea Capitis in Belgian Congo and Ruanda Urundi ... 45
Ziskind, Pizzolôto & Bufi ... Aspergillosis of Brain ... 45

London School of Hygiene and Tropical Medicine

(UNIVERSITY OF LONDON)

Incorporating the Ross Institute

KEPPEL STREET, (GOWER STREET), LONDON, W.C.1

Dean: Sir James Kilpatrick, *K.B.E., C.B.*, M.B., D.P.H.

The London School of Hygiene and Tropical Medicine provides the following courses of instruction:

(1) **Academic Postgraduate Diploma in Public Health:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Fee: £73 10s.

(2) **Academic Postgraduate Diploma in Bacteriology:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Applications must be received not later than 1 March. Fee: £73 10s.

(3) **Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene:** The course commences at the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.T.M. & H. course extending over approximately the first 4½ months. Applicants must elect to study one of the following subjects at the final part of the course:—Clinical Tropical Medicine: Tropical Hygiene. Fee: £73 10s. (£42 for the C.T.M. & H. only).

(4) **Diploma in Tropical Medicine and Hygiene (England):** The course for the Conjoint Board's Diploma is held twice a year: from the beginning of October to mid-February and from the beginning of March to mid-July. Fee: £42.

(5) **Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology:** The course commences about the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.A.P. & E. course extending over approximately the first 4½ months. Fee: £73 10s. (£42 for the C.A.P. & E. course only).

(6) A course in **Statistical Methods applied to Medicine and Epidemiology** is held annually on two days a week from about the beginning of January to about the end of April. Students without a medical qualification can be accepted. Fee: £15 15s.

(7) **Public Health Engineering:** The course commences at the beginning of October and lasts for 9 months (whole-time). It is given in co-operation with Imperial College and is intended primarily for students with a university degree in civil engineering or an equivalent qualification. Applications to Imperial College. Fee: £60 plus £2 entrance fee.

(8) **Academic Postgraduate Diploma in Psychology:** Students who are registered for this Diploma at a College of the University may by arrangement attend lectures covering Part II, Section C (Occupational).

(9) **Diploma in Industrial Health:** The industrial health lectures and practical work arranged by the School for Diploma in Public Health students taking Industrial Health as their special subject are recognized by the Conjoint Board and by the Society of Apothecaries as fulfilling the requirements for entry to the D.I.H. examination.

(10) **Environmental Control:** A ten-weeks' course held twice in each academic year; commencing about the beginning of March and about the beginning of October. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: £27 6s. including registration fee.

(11) **Higher Degrees:** Facilities are provided for candidates studying for the degrees of Ph.D. and M.Sc. in appropriate subjects.

Clinical instruction is given at the Hospital for Tropical Diseases and elsewhere.

Enquiries should be addressed to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, (Gower Street), London, W.C.1. (Telephone: MUSeum 3041 and LANgham 7621).

DISEASES DUE TO FUNGI—*cont.*

PAGE

Wijsmuller ... Histoplasmin Sensitivity in Villages in Netherlands New Guinea ... 45
Wilcox, Waisbren & Martin ... Walworth, Wisconsin, Epidemic of Histoplasmosis ... 45
Van Dijk & Der Kinderen ... Sporotrichosis ... 45

HEART DISEASE

Kennedy; Cowan ... Incidence of Coronary Heart Disease in Rural Area in S-W Scotland ... 46

CANCER

Sarma ... Incidence and Aetiology of Cancer of Larynx and Adjacent Parts in Assam ... 46
Hammond ... Lung Cancer Death Rates in England and Wales compared with U.S.A. ... 46
Denoix, Schwartz & Anguera ... French Study of Aetiology of Broncho-Pulmonary Cancer ... 47
Sträuli ... Cancer of Lung in Women ... 47
Danetskaya ... Use of Ultra Sound and High Frequency Currents for Decancerization of Slate Chamber Tar ... 48

OCCUPATIONAL HYGIENE

Min. of Pensions & Nat. Insurance Diagnosis of Occupational Diseases prescribed under National Insurance (Industrial Injuries) Act, 1946 ... 48
Henderson, Walker & Wilson ... Long-Term Incapacity for Work ... 48
Sillery ... Decompression Sickness ... 49
Ordman ... Cereal Grain Dusts as Cause of Respiratory Allergy in S. Africa ... 49
Houberechts ... Work of Institut D'Hygiène des Mines during 1957 ... 49
Oosthuizen ... Differences in Radiological Appearance between Lung Fields of African and European ... 50
Vigliani ... Mass Miniature Film Survey made by National Accident Prevention Bureau in Dusty Trades during 1955 ... 50
Faraone & Majori ... Konimetric and Granulometric Estimations in Various Phases of Work in Pumice Industry of Canneto-Lipari (Messina) ... 50
Münz ... Occupational Illness in Glass Grinders ... 51
Furuya ... Tissue Reactions produced by Aluminium Dust and Effect of Aluminium on Development of Silicosis ... 51
Furuya ... Tissue Reaction by Amorphous Fine Silica and Quartz with Different Sizes ... 51
Schlipköter & Dolgner ... Alleged Formation of Antibodies after Injection of Quartz into Animals ... 51
Rejsek ... Pulmonary Function in Silicosis ... 52
Gaffuri & Berra ... Normal Vital Capacity Values and Maximum Expiratory Volume per Second ... 52
Sartorelli, Grieco, Scotti & Tomasini ... Lung Elasticity Evaluation in Normal and Silicotic Subjects by determining Relaxation Pressure Curve ... 52
Sartorelli & Grieco ... Respiratory Dead Space and Alveolar Ventilation in Normal Subjects ... 52
Curtis, Bauer, Loomans & Rasmussen ... Pulmonary Diffusion Capacity Studies. I. Simplified Technique of Carbon Monoxide Breathholding. II. Clinical Results using Modified Carbon Monoxide Breathholding Technique ... 52
Negri & Tozzi ... Course of Pulmonary Tuberculosis in Silicotic Patients ... 53
Kovalevich ... Silicosis from Diatomaceous Earth ... 53
Mikhalova ... Effects of Corticotrophin on Development of Experimental Silicosis ... 53
McCallum & Newell ... Pneumoconiosis of Coal-Miners in 3 Northumbrian Collieries 53
Fellmann, Alpstäg & Del Buono Polyarthritis and Silicosis ... 54
Kantor & Morrow ... Caplan's Syndrome; Perplexing Pneumoconiosis with Rheumatoid Arthritis ... 54
Campbell ... Caplan's Syndrome in Boiler-Scaler ... 54
Caplan, Cowen & Gough ... Rheumatoid Pneumoconiosis in Foundry Worker ... 55
Rickards & Barrett ... Rheumatoid Lung Changes associated with Asbestosis ... 55
Cummins, Yeoh Seang Aun & Davies ... Kaolin Pneumoconiosis ... 55

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Oyanguren; Haddad; Maass; Schuler; Cruz; Guijon; Maturana; Valenzuela	Stannosis. Benign Pneumoconiosis owing to Inhalation of Tin Dust and Fume. I. Environmental and Experimental Studies. II. Clinical Studies	56
Vorobieva	Pulmonary Fibrosis from Cadmium Oxide	56
Gombos	Pulmonary Nodulation by inhaling Barium Dust	56
Schepers, Durkan, Delahant, Redlin, Schmidt, Creedon, Jacobson & Bailey	Biological Action of Fiberglas-Plastic Dust	57
Dimmick, Hatch & Ng	Particle-Sizing Method for Aerosols and Fine Powders ...	57
Landwehr	Electrostatic Charge on Mine Dusts	57
Tempest & Atkins	Influence of Clothing on Pattern and Severity of Burns studied in Recent Colliery Fire-Damp Ignitions	58
Guerdjikoff	Industrial Lead Hazards in Switzerland	58
Nicolet	Prevention of Lead Poisoning	58
Moeschlin	Clinical Picture and Therapy of Lead Poisoning	58
Högger	Work of Swiss Commission on Tetra-Ethyl Lead, 1947–57	59
Caccuri, Pecora, Fati & Vecchione	Biosynthesis of Porphyrins in Lead Intoxication	59
Haine	Vanadium Poisoning	59
Neogi	Chronic Manganese Poisoning and its Prevention	60
Vorobjeva	Toxicity of Cadmium Oxide	60
Verga & Belloni	Purpura due to Phosphine Poisoning	60
Levinskas, Paslian & Bleckman ...	Chronic Toxicity of Pentaborane Vapour	60
Furnas & Hine	Neurotoxicity of Selected Hydrocarbons	61
Talenti, Del Vecchio & Cappuccilli	Hygienic Conditions in Dry-Cleaning Shops in Rome ...	61
Guild, Young & Merrill	Anuria due to Carbon Tetrachloride Intoxication	62
Pacséri, Magos & Bátskor ...	Threshold and Toxic Limits of Amino and Nitro Compounds	62
Apthorp, Bates, Marshall & Mendel	Effect of Acute Carbon Monoxide Poisoning on Work Capacity	62
Quilligan, Boche, Falk & Kotin	Toxicity of Ozone for Young Chicks	63
Erdmann, Sakai & Scheler ...	Treatment of E 605 Poisoning with Atropine and the Esterase Reactivator PAM	63
Steyn	Treatment of Poisoning with Alkylphosphate Insecticides ...	64
Gortalum & Dikun	3,4-Benzopyrene Content in Schistose Products	64
Van Ketel, Morrien & Lenstra ...	Skin Lesions caused by Chlorpromazine	64
Martin	Contribution to Gene Material of Population from Medical Use of Ionizing Radiations	64
Tanner, Whitehouse & Powell ...	Armadillo: Protective Clothing as Shield from X-Radiation	65

ATMOSPHERIC POLLUTION

Gorman	Clean Air and Smokeless Fuel	65
Gorham	Bronchitis and Acidity of Urban Precipitation	65

PHYSIOLOGY AS APPLIED TO HYGIENE

Lehmann	Physiological Measurements as Basis of Work Organization in Industry	66

SANITATION

Water

WHO	International Standards for Drinking-Water	66
Pub. Health Lab. Service Water Sub-Committee	Comparison between MacConkey Broth and Glutamic Acid Media for Detection of Coliform Organisms in Water ...	67
Thon & Beling	Use of Nutrient Cardboards for Bacteriological Examination of Water by Membrane Filter Method	67
Poma	Methods of Bacteriological Analysis of Water as advocated by Pasteur Institute, Lille	67
Gol'dfarb & Ostrovskaia	Detection of Typhoid Bacilli in Water using Increase of Phage Titre Reaction	68
Geever, Leone, Geiser & Lieberman	Pathological Studies in Man after Prolonged Ingestion of Fluoride in Drinking Water	68
Zipkin, McClure, Leone & Lee ...	Fluoride Deposition in Human Bones after Prolonged Ingestion of Fluoride in Drinking Water	68
McClure, McCann & Leone ...	Excessive Fluoride in Water and Bone Chemistry	68

Sewage, Trade Waste and Refuse Disposal

Tsivoglou, Bartsch, Rushing & Holaday	Effects of Uranium Ore Refinery Wastes on Receiving Waters	69

FOOD AND NUTRITION

PAGE

General

Min. of Health. Dept. of Health for Scotland	Handbook on Premises, Equipment and Practices for Promotion of Hygiene in Catering Establishments	69

Foodstuffs

Davis	Hygienic Condition of Misused Milk Bottles after Washing	69
Dept. Scient. & Indust. Res.	Microbiology of Fish and Meat Curing Brines. Proceedings of 2nd International Symposium on Food Microbiology, Cambridge, 1957	70
Schesser, Priddle & Farrell	Insecticidal Residues in Milling Fractions from Wheat Treated with Methoxychlor, Malathion and Lindane	70
Schönherr	Membrane Filters in combination with Nutrient Cardboard Disks in Control of Milk Hygiene	71
Froehner	Veterinary Hygiene in relation to Milk	71

Food Poisoning

McAlpine & Araki	Minamata Disease, caused by Contaminated Fish	71
Armijo	Food Poisoning at School of Medicine Cafeteria traced to Guanabana Seed	72
Ehrenkranz, Takos, Hoffert & Riemer	Epidemic of *Sh. sonnei* Dysentery	72
Karunakaran	Kerala Food Poisoning	72
Bernstein	New Phage Type of *Salm. paratyphi* in Outbreak of Food Poisoning	72

BACTERIOLOGY AND IMMUNITY

General

Meynell	Low Precision of Infectivity Titrations using a Quantal Response	73
Chang, Berg, Busch, Stevenson, Clarke & Kabler	Application of "Most Probable Number" Method for estimating Concentrations of Animal Viruses by Tissue Culture Technique	73
Stevens	Dilution Series	73
Moran	Test for Heterogeneity of Host Resistance in Dilution Assays	74
Mackeprang & Bentzon	Method for Determining Number of Viable Bacteria in Suspensions of Mycobacteria grown in Dubos Fluid Medium with Tween	74
Hess & Lagg	Physical Aspects of Bacterial Cell	74
Barile, Yaguchi & Eveland	Simplified Medium for Cultivation of Pleuropneumonia-Like Organisms and L-Forms of Bacteria	74
Schabinski & Urbach	Prevention of Syringe Contamination during Mass Inoculations	75
Bourgain, Bonnel & Raby	Pseudomonadaceae Family. Frequent Source of Bacterial Contamination in Stored Blood and Blood Derivatives	75

Bacteriostatic and Bactericidal Substances: Disinfection

Taylor, Heimer & Spicer	Freeze-Dried Disk Technique for Determining Sensitivity of Bacteria to Sulphonamides and Antibiotics	75
Melnykovych & Johansson	Effects of Antibiotics on Synthesis of Lysine Decarboxylase in *E. coli*	76
Ramsey	Protein Synthesis as Basis for Chloramphenicol-Resistance in *Staph. aureus*	76
Lachman	Anaphylactic Reaction to Oral Chlortetracycline	76
Felder	Sigmamycin in Paediatrics	76
Guillot	Production by *L. acidophilus* of a Substance active against *C. albicans*	77
Hasegawa, Tanabe, Shiozawa & Nakagaki	Screening Tests for Antibiotic Action of Plant Extracts	77
Knox, Robbins & Smith	Influence of Pyrimidine Analogues and Related Compounds on Propagation of Poliomyelitis Virus in Tissue Culture	77

Individual Bacteria

Van Oye	Salmonellae of Belgian Congo	77
Hemmes	Transmission of *Salm. newport* by Tortoises	77
Sapiro-Hirsch, Altmann & Hirsch	New Salmonella Type: Salm. negev	78
Miles	Toxicity of Intracutaneous TAB Vaccine	78
Donald, Winkler & Hare	Mechanism of Leucopenic Response to *Shigella* Endotoxin	78
Ślopek, Metzger, Obst & Rudnicka	Serological Varieties of *Sh. flexneri* Types 1, 2, 3 and 4	78

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Metzger & Rudnicka	Antigenic Structure of *Sh. flexneri* Strains lacking Type Antigen	78
Harris; Harris; Ogburn; Farber	Transfer of Lymph Node Cells. IX. Use of Dialysates of *Shigella*-Trypsin Filtrates for *in vitro* Incubation with Lymph Node Cells. X. Amounts of *Shigella*-Trypsin Antigen associated with Lymph Node Cells during *in vitro* Incubation	79
Marberg, Altmann & Eshkol-Bruck	Resistance to Sulphadiazine and Antibiotics in Shigellosis	79
Linzenmeier & Seeliger	Isolation and Differentiation of Pathogenic *E. coli* from Stools with aid of Antibiotic containing Filter Paper Strips	79
Lederberg & St. Clair	Protoplasts and L-Type Growth of *E. coli*	79
Lippert	Biology of Pathogenic Coli Strains	80
Zamenhof & Greer	Heat as Agent producing High Frequency of Mutations and Unstable Genes in *E. coli*	80
Fredericq & Papavassiliou ...	Genetic Crossing of Strains of *E. coli* marked by Production of Colicine 1	80
Rogers & Melly	Bacteriaemia. IV. Alterations in Rabbit Mortality associated with Ageing of Culture of *E. coli*	81
Alper & Gillies	Dependence of Observed Oxygen Effect on Post-Irradiation Treatment of Micro-Organisms	81
Carey, Braude & Zalesky	Radio-Active Endotoxin. III. Effect of Tolerance on Distribution of Radio-Activity after Intravenous Injection of *E. coli* Endotoxin labelled with Cr^{51}	81
Vickers	*Bact. alkaligenes* on Blood Culture	81
Knoll	Pyrogenic Effect of Polysaccharides from Virulent and Avirulent *Klebsiella* Strains	81
Jerzmanowski & Ubysz-Jermanowska	Variation of *C. diphtheriae* under Influence of Antibiotics ...	82
Borecka & Kozak	Influence of Diphtheria Toxin on Phagocytic Ability and Motility of Leucocytes	82
Prévot, Magnin, Levrel, Duby & De Cadore	Pathogenicity of *Ramibacterium pleuriticum*	82
Meyer, Sartory, Malgras & Schurch	Electrophoretic Study of Tuberculins and of Tuberculins treated by Specific Antibiotics	82
Chandrasekhar, DeMonte & Subramanian	Fatty Acids from Lipids of Streptomycin-Resistant Tubercle Bacilli	83
Mackeprang	Dispersing Effect of Ultrasonics on Mycobacteria	83
Staib	Resistance of Yeasts and Yeast-Like Fungi to Sulphuric Acid	83
Grumbach	Experimental Antituberculous Activity of Pyrazinamide ...	83
Viallier & Cayré	Sensitivity of 189 Strains of *Myco. tuberculosis* to Viomycin	84
Kanai & Yanagisawa	Kanamycin in Experimental Guineapig Tuberculosis ...	84
Kanai, Katsuyama, Nakajima & Yanagisawa	*In vitro* Activities of Kanamycin against Tubercle Bacilli ...	84
Hart & Lovelock	Protection of Living Cells against Acid by Certain Non-Ionic and Amphoteric Soaps	85
Hardy, Dunbar, Jefferies, Bond & Lewis	Pulmonary Diseases associated with Atypical Acid-Fast Bacilli	85
Yaoi, Takei & Tsuji	Biological Studies on *Myco. ulcerans*. VI. Triphenyl Tetrazolium Chloride Reduction	85
Ortel	Phage Types of Staphylococci, Susceptible or Resistant to Penicillin or Resistant to several Antibiotics	86
Pecori, Altucci, Cimino, Mazzacca & Riccardi	Resistance of Staphlylococci to Antibiotics	86
Rubinstein	Mechanism of Action of Staphylocoagulase	86
Krzywy, Stanecki & Fast	Changes of Biochemical Properties of *Staph. aureus* immunized *in vitro* to Antibiotics	86
Sugiyama, Bergdoll & Dack ...	Increased Serum Glutamic-Oxalacetic Transaminase of Monkeys following Oral Administration of Staphylococcal Enterotoxin	87
Bartels, Blechman & Cavallaro	Inhibitory Action of Saliva on *in vitro* Growth of Beta-Haemolytic Streptococci	87
Williams	Laboratory Diagnosis of Streptococcal Infections	87
Jablon, Saul & Saslaw	Microtechnique for Determination of Titres of Antistreptolysin O	87
Madoff & Dienes	L Forms from Pneumococci	87
Sterne	Growth of *Br. abortus* Strain 19 in Aerated Dialysed Media	87

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

PAGE

Freeman & Vana ... Host-Parasite Relationships in Brucellosis. I. Infection of Normal Guineapig Macrophages in Tissue Culture ... 88
Lin ... Pertussis Vaccine. I. Use of Cow's Blood in Bordet-Gengou Medium for Pertussis Vaccine Preparation ... 88
Munoz, Schuchardt & Verwey ... Anaphylaxis in *H. pertussis*-Treated Mice. I. Passive Anaphylaxis with Heterologous Rabbit Antibody ... 88
De Caro & Samarani ... Action of Oleandomycin and Isonicotinic Acid Hydrazide on Some Strains of *H. pertussis* ... 88

Fungi

Walker ... Effect of UV Irradiation on Spores of *T. sulfureum* ... 89
Prévot & De Mellis ... *In vitro* Sensitivity of *Actinobacterium israeli* and *Actinobacterium meyeri* to Oleandomycin ... 89

Bacteriophages

Raettig ... Bacteriophagia 1917–56 ... 90
Rosenbaum & Preston ... Protein and Nucleic Acid Relationships in *E. coli* Infected with Phage T2 ... 90
Hershey, Burgi & Streisinger ... Genetic Recombination between Phages in Presence of Chloramphenicol ... 90
Edgar ... Mapping Experiments with *r*II and *h* Mutants of Bacteriophage T4D ... 90
Pfefferkorn & Amos ... Deoxyribonucleic Acid Breakdown and Resynthesis in T5 Bacteriophage Infection ... 91
Mulczyk & Kucharewicz ... *Shigella* Phages ... 91
Coetzee ... Characterization of Series of *Proteus* Bacteriophages ... 91

Viruses

Quersin-Thiry ... Action of Anticellular Sera on Virus Infections. I. Influence on Homologous Tissue Cultures infected with Various Viruses ... 91
Bang & Niven ... Infection in Organized Tissue Cultures ... 92
Strauch & Rott ... Isolation of Psittacosis Virus from Budgerigars by Inoculation of Mice and Eggs ... 92
Kawakami, Kaji, Sugimura, Omori & Matumoto ... Miyagawanella: Psittacosis-Lymphogranuloma Group of Viruses. V. Isolation of Virus from Faeces of Naturally Infected Sheep ... 92
Roots & Rott ... Preparation of Effective Complement-Fixing Antigen with Purified Psittacosis Virus ... 92
Sureau, Dodin & Brygoo ... Culture of Vaccinia Virus. I. Attempts to culture Vaccinia Virus on Tissue Culture of Rabbit Kidney Epithelial Cells 92
Rozee, Williams & Van Rooyen ... Detection and Titration of Asian Influenza A Virus by HeLa Cell and Monkey Kidney Cell Cultures ... 92
Horváth ... Cyclic Multiplication of Influenza and Newcastle Disease Viruses in Tissue Cultures ... 93
Svet-Moldavsky & Ghendon ... Demonstration of Influenza Virus with Gel-Diffusion Method of Precipitation directly in Tissue Culture ... 93
Henle; Paucker ... Interference between Inactivated and Active Influenza Viruses in Chick Embryo. I. Re-Evaluation of Factors of Dosage and Timing with Infectivity Titrations for Assay. II. Interference by Incomplete Forms of Influenza Virus ... 93
Pereira ... Typing of Q-Phase Influenza A Virus by Serum-Neutralization Tests in Monkey Kidney Cultures ... 93
Ada; Perry; Abbot ... Biological and Physical Properties of Ryan Strain of Filamentous Influenza Virus ... 94
Choppin, Osterhout & Tamm ... Immunological Characteristics of New York Strains of Influenza A Virus from 1957 Pandemic ... 94
Tokuda ... Antigenicity of Influenza Virus isolated in Epidemic of Early Summer, 1957 ... 95
Brand ... Specificity of Complement-Fixing Antigens in Allantoic Fluids infected with Influenza Virus ... 95
Bordet ... Influenza Virus and Shwartzman Phenomenon ... 95
Drevo, Spousta, Blasko & Slonim Preparation of Specific Equine Serum against Influenza ... 95
Fazekas De St. Groth, Withell & Lafferty ... Improved Assay Method for neutralizing Antibodies against Influenza Viruses ... 95
Levy & Wagner ... Increased Avidity of Antibody for Baltimore 1957 Strains of Asian Influenza Virus ... 96

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
Grayston; Loosli; Smith; McCarthy; Johnston; Lashof ... Adenoviruses. I. Effect of Total Incubation Time in HeLa Cell Cultures on Isolation Rate. II. Sensitivity of Different Tissue Culture Strains of Cells to Adenoviruses. III. Aetiological Role in Acute Respiratory Diseases in Civilian Adults ... 96
Dreizin & Trubina ... Morphological Changes in Tissue Cultures infected with Adenoviruses ... 96
Prier & LeBeau ... Cellular Lesions in Monkey Kidney Epithelium induced by Adenoviruses and Viruses of Simian Origin ... 97
Binn, Hilleman, Rodriguez & Glabere ... Antigenic Relationships among Adenoviruses with Appraisal of Reliability of Complement-Fixation Test for Typing Isolates ... 97
Ross & Ginsberg ... Haemagglutination with Adenoviruses ... 97
Cramblett ... Isolation of Cytopathogenic Agent resembling CA Virus from Infant with Croup ... 97
Okuno, Ishii, Kunita, Kusumoto, Ebara & Fujita ... Cultivation of Poliomyelitis Virus in Chick Embryo ... 97
Dunnebacke & Reaume ... Correlation of Yield of Poliovirus with Size of Isolated Tissue Culture Cells ... 97
Wesslén & Sourander ... Changes in Virulence of Attenuated Strains of Poliomyelitis Virus after Passages in Cultures of Human Embryonic Tissue ... 98
Hummeler & Ketler ... Dissociation of Poliomyelitis Virus from Neutralizing Antibody ... 98
Gastinel, Vaisman & Dunoyer ... Sensitization to Intradermal Inoculation of Poliomyelitis Virus, Lansing Strain ... 98
Drake ... Interference and Multiplicity Reactivation in Polioviruses ... 98
Lycke ... Interference between Poliomyelitis Virus and Coxsackie B or ECHO Viruses ... 98
Sugai ... Propagation and Interference Phenomena of Group A Type 2 Coxsackie Virus in Developing Chick Embryo ... 99
Collier & Bool ... Infection Experiments with Parapoliomyelitis (Col Sk) Virus in Dogs ... 99
Chou ... Haemagglutination of Japanese B Encephalitis. I. Preparation and Properties of Dried Haemagglutinin. II. Inhibitor in Mouse Brain ... 99
Kodza & Jungeblut ... Effect of Receptor-Destroying Enzyme on Growth of Encephalomyocarditis Virus in Tissue Culture ... 99

Immunity

Burke & Miles ... Sequence of Vascular Events in Early Infective Inflammation ... 100
Miles & Miles ... State of Lymphatic Capillaries in Acute Inflammatory Lesions ... 100
Tayeau & Marqueviells ... Specific Character of Second Phase of Antigen-Antibody Precipitation Reaction ... 100
Myrvik, Soto-Figueroa, Naff & Henelt ... Antibacterial Factors in Mammalian Tissues and Fluids. II. Cofactor Requirements of Serum Bactericidin for *B. subtilis*. III. Serum Bactericidin Levels for *B. subtilis* in Myocardial Infarction, Pneumonia and other Diseases of Man ... 101
Green ... Effects of Nitrogen Mustard on Immunological Response of Rabbit. I. Effects on Primary Response to Bacterial Antigen ... 101

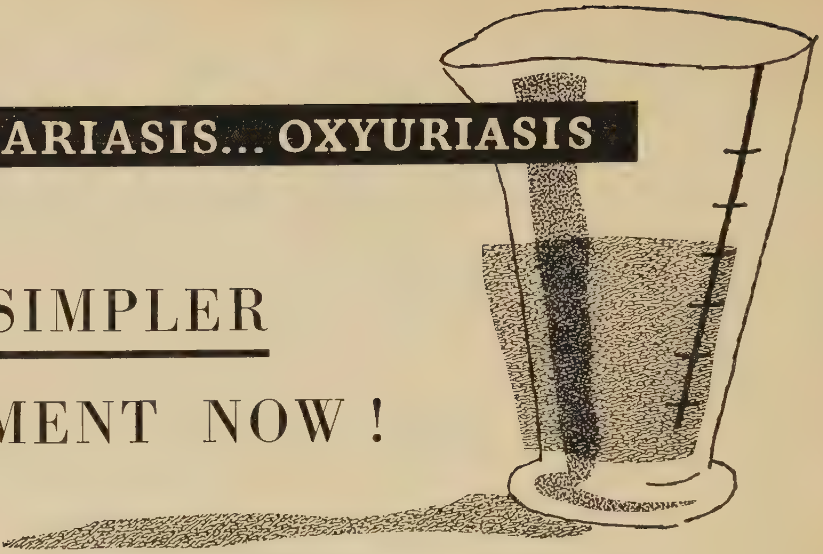
MISCELLANEOUS

Hill ... Experimental Approach in Preventive Medicine. I. Problems of Experiments in Man. II. Controlled Trials of Vaccines. III. Influenza and Common Cold ... 102
Modell & Houde ... Factors influencing Clinical Evaluation of Drugs with special reference to Double-Blind Technique ... 103

BOOK REVIEWS

Roberts ... A Synopsis of Hygiene ... 103
Society for General Microbiology ... Strategy of Chemotherapy ... 104

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.



IN ASCARIASIS... OXYURIASIS

STILL SIMPLER

TREATMENT NOW !

Today, the treatment of roundworm infestation has been reduced to still simpler terms. Just one dose of one fluid ounce of 'Antepar' Elixir completely eradicates roundworms.* No preliminary treatment is needed . . . no "follow-up" measures are necessary. 'Antepar' also provides the surest, simplest answer to threadworms—the course comprising single daily doses of the preparation for seven consecutive days. 'Antepar' treatment is genuinely *pleasant*, too. The Elixir proves particularly popular; the Tablets, which are specially flavoured for pleasant chewing, are available for those who prefer this type of medication.

'ANTEPAR'
TRADE MARK

today's conclusive *answer to roundworms and threadworms*

NOW IN TWO FORMS

ELIXIR—contains piperazine citrate equivalent to 500 mgm. piperazine per teaspoonful (3·5 c.c.). *Bottles of* 1, 4 *and* 20 *fl. oz.*

TABLETS—attractively flavoured for chewing. Each provides 500 mgm. piperazine. *Strip packs of* 20; *bottles of* 250.

*This dosage is for older children and adults. Still smaller dosage is needed for young children. When employing 'Antepar' Tablets in ascariasis, a single dose of six or eight tablets is recommended—according to the patient's age.

BURROUGHS WELLCOME & CO. · LONDON
(THE WELLCOME FOUNDATION LTD.)

Associated Houses : AUCKLAND · BOMBAY · BUENOS AIRES · DUBLIN · JOHANNESBURG
KARACHI · MONTREAL · NAIROBI · NEW YORK · RIO DE JANEIRO · ROME · SYDNEY

1st choice
for treating
most bacterial
infections
Penicillin

Penicillin, the first antibiotic, is still foremost for safety, economy and effectiveness. Glaxo helped pioneer the large scale manufacture of penicillin and have always maintained the highest standards of purity and quality in their products, as well as the greatest degree of efficiency in the packaging, pricing and technical advisory services that revolve round such a vital therapeutic agent.

1st choice
of penicillins
**Crystapen*
Injection**

CRYSTAPEN is the *soluble* sodium form of penicillin that dissolves readily when added to sterile water, giving a clear, pure solution. CRYSTAPEN, which gives an immediate destructive level, is particularly suitable in cases requiring a swift response. The routine of one large dose daily has been shown by long experience to be the most effective and least expensive. None of the 'prolonged action' penicillins has the capacity of CRYSTAPEN to produce high concentrations: none will give better or speedier clinical results.

Vials: 100,000 units
Vials: 200,000 units
Vials: 500,000 units
Vials: 1 mega unit
Vials: 2 mega units
Bottles: † 5 mega units
Bottles: † 10 mega units
†Available buffered as well

GLAXO

GLAXO LABORATORIES LTD.,
GREENFORD, MIDDLESEX. *BYRon 3434*
Crystapen is available in most countries
*TRADE MARK

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port, Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with:—

- Protozoal Infections (Malaria, trypanosomiasis, leishmaniasis and others)
- Rickettsial Diseases
- Tropical Virus Diseases (Yellow fever and others)
- Tropical Bacterial Diseases (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin*.

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Bank House, 3 Whitecross Street, Monmouth.

CONTENTS

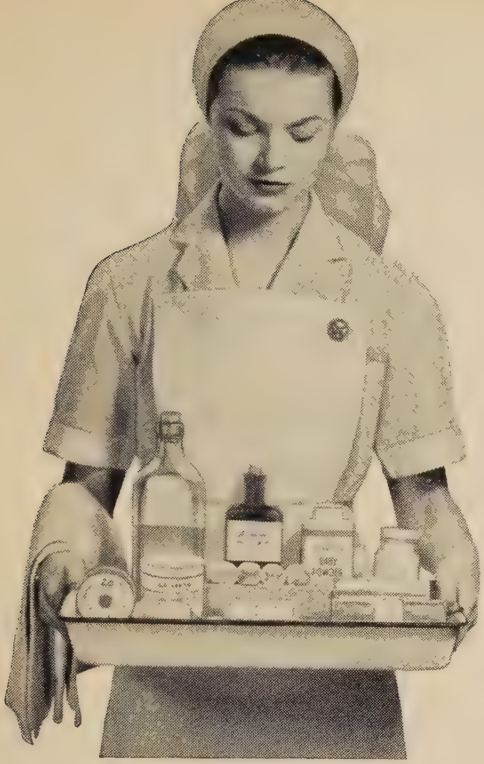
VITAL STATISTICS AND EPIDEMIOLOGY

PAGE
ANDERS & MEIER ... ... Epidemiological Review for 1956 of German Federal Republic and West Berlin 105

COMMUNICABLE DISEASES

Infective Diseases

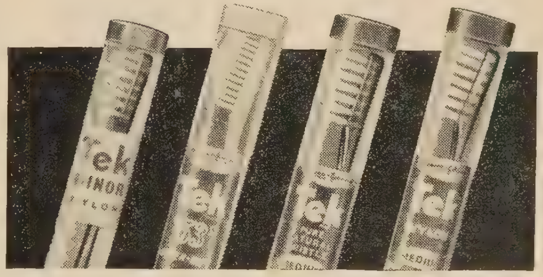
U.S. DEPT. OF HEALTH, EDUCATION AND WELFARE ... ... Immunization Information for International Travel 105
RUIZ SANCHEZ, RUIZ SANCHEZ, ACEVES & NARANJO GRANDA ... Sulfamethoxypyridazine in Treatment of Infectious Diseases 106
MACIEREWICZ, OZIEMSKA-ŁOZIŃSKA & TYRMAN ... ... Bacteriological Evaluation of Methods employed in diagnosing Diphtheria 106
GOLDSMITH, COWAN & GOODER ... Acute Glomerulonephritis due to Griffith Type-1 *Streptococcus* 106
KESSLER & SCOTT ... ... Staphyloccocal Infections in Young Infants 106
FLOREY ... ... Infections due to *Staph. aureus* 106
HENDREN & HAGGERTY ... ... Staphylococcic Pneumonia in Infancy 107
CALVY & SCHUMACHER ... ... Ristocetin and *Staphylococcus* 107
CABRERA, HIBBARD & PADOVAN ... Staphylococcal Enteritis 107
SCHWABACHER & SALSBURY ... ... Clinical Evaluation of Staphylococcal Anti-Alpha Haemolysin Titres in Patients' Sera 107
CROSBY ... ... *Staphylococcus* Infections in Hospitals 108
PAPP ... ... Route of Infection with Measles Virus 108
REYNOLDS & JOOS ... ... Eczema Vaccinatum 108
FUKUMI, MIZUTANI, NISHIKAWA, YAMAMOTO, OKUMA & KURIYAMA ... A/Asia/1957 Type Influenza in Nursery 108



First choice in hospitals and homes

In hospitals throughout the world, where only the highest standards are acceptable, Johnson & Johnson's famous products are in constant daily use. For Johnson & Johnson is the largest organisation of surgical dressing manufacturers in the world, with the widest obtainable range of surgical dressings and nursing specialities of all kinds.

Johnson's BABY LOTION
Johnson's BABY POWDER
SOAP
BABY SOAP



SDBP/1/58

Your patients know and trust Johnson's Baby Products. The range includes every essential for a baby's care and comfort—baby powder, soap, cream and lotion and a new liquid shampoo, which cannot burn or sting the eyes.

Tek toothbrushes, also, are chosen for their outstanding quality. The range includes both nylon and bristle brushes, the super-soft Tek 53 and Tek minor, specially designed for children.

Johnson & Johnson's range of world-renowned products include:

JOHNSON'S BABY POWDER, BABY CREAM, BABY OIL, BABY SOAP, BABY SHAMPOO, BABY LOTION, BAND-AID FIRST AID DRESSINGS (ELASTIC AND PLASTIC), 'ZO' AND 'ZONAS' SPOOL PLASTERS, FIRST-AID KITS, 'ELASTIKON' ADHESIVE PLASTERS, FOOT PRODUCTS, 'MODESS' PERSONAL PRODUCTS

J&J

Johnson & Johnson

The World's most trusted name
in Surgical Dressings and Baby Products

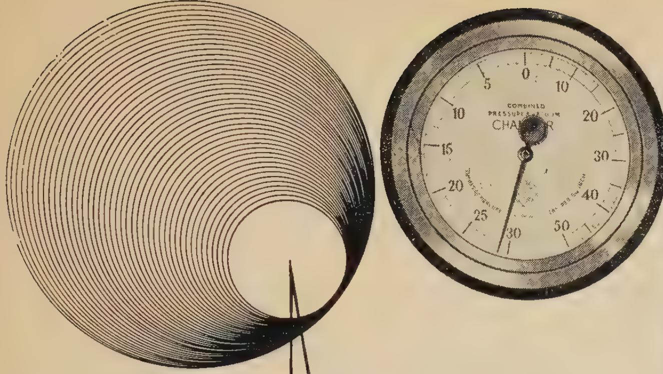
COMMUNICABLE DISEASES—*cont.*

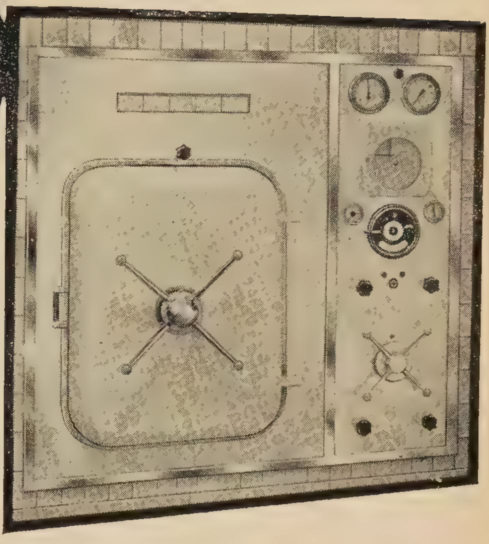
Infective Diseases—*cont.*

		PAGE
Robertson, Caley & Moore ...	*Staphlyococcus aureus* in Pneumonia in 1957 Epidemic of Influenza A	109
Paredes, Cabezas, Pino, Gilardino, De Pablo & Valenzuela	Bacteriology of Pulmonary Complications in Influenza ...	109
McCarroll & Kilbourne	Immunization with Asian-Strain Influenza Vaccine	109
Hilleman, Greenberg, Warefield, Anderson & Glabere	Evaluation of Bivalent Types 4 and 7 Adenovirus Vaccine	110
Leather	Pneumonia among Africans in Uganda	110
Edwards & Fear	Adult Chronic Bronchitis	110
Alter & Michael	Serum Hepatitis in Group of Drug Addicts	110
Brumfitt & O'Grady	Laboratory Diagnosis of Glandular Fever	110
Mikkelsen, Tupper & Murray ...	Ox Cell Haemolysin Test as Diagnostic Procedure in Infectious Mononucleosis	111
Vandeputte & Bervoets	Immunology of Poliomyelitis in Belgian Congo	112
Van Erp	Poliomyelitis in S. Sumatra	112
Kitamura	Encephalomeningomyelitis in Ehime-Syuso Area in Japan	112
Melnick	Portable Tissue Culture Laboratory in Field Study of Tropical Poliomyelitis	112
Fox, Gelfand, LeBlanc & Rowan	Influence of Natural and Artificially Induced Immunity on Alimentary Infections with Polioviruses	112
Petrilla	Intracutaneous Poliomyelitis Vaccination in Hungary in 1957	113
Martins Da Silva	Response to Controlled Infection by Attenuated Poliomyelitis Virus in Neonatal Period and Early Infancy	113
Stevenson	Salk Vaccination in Adult Women	114
Chin, Lehan, Rubin, Doto, Heeren, Wenner & Furcolow ...	Aseptic Meningitis caused by Coxsackie Virus B5	114
Hosier & Newton	Coxsackie Infection in Infants. Myocarditis, Meningo-encephalitis and Hepatitis	114
Utz & Shelokov	Coxsackie B Virus Infection	114
Flugsrud, Abrahamsen & Lahelle	Aseptic Meningitis associated with Virus related to ECHO Type 9	115
Hiraki, Demiya, Kageyama & Kiyama	Therapeutic Effects of ACTH on Japanese B Encephalitis	115
Maroja, Silva & De Freitas ...	Typhoid Fever in Brazil	115
Schäfer	Duration of Infectivity of *Salmonella*-Infections	115
De La Cruz	Salmonellosis in Costa Rica	116
Voiculescu, Neuman, Elian, Horodniceanu, Russ, Vlad & Dancu	*Shigella boydii* Dysentery	116

Tuberculosis

Woodruff	Tuberculosis in S. Australia	116
Moraes	Is Tuberculosis Still a Serious Problem in Brazil?	117
Cochran & Fletcher	Radiographic and Tuberculin Survey in Mental Hospital ...	117
Pepys, Bruce & James	Multiple Puncture Depot Tuberculin Cream Tests in Man	118
Veterans Dept. of Medicine & Surgery	Tuberculosis Laboratory Methods for Veterans Administration–Armed Forces Cooperative Study on Chemotherapy of Tuberculosis	118
Bauer	Observer Error in Multiple Interpretation of Photofluorograms	119
Stein & Freiman	Phlyctenular Conjunctivitis in African Children	119
Long	Supporting Structure of Immunity in Therapy of Tuberculosis	119
Fox	Problem of Self-Administration of Drugs	119
De Alemquer	Hypersensitivity Reaction to Para-Aminosalicylic Acid ...	119
Lewis	Drug Resistance in Pulmonary Tuberculosis treated with Calcium B-PAS	120
Evander, Rose, Beutner, Tashiro & Doyle	PAS Salt of Isoniazid in Treatment of Tuberculosis ...	120
Ross	Use of Pyridoxine Hydrochloride to prevent Isoniazid Toxicity	120
Kirshner	Massive-Dose Isoniazid with Pyridoxine in Chronic Pulmonary Tuberculosis	120
Ritchie, Campbell, Cuthbert & Bruce	Treatment of Drug-Resistant Pulmonary Tuberculosis with Cycloserine and Pyrazinamide	121
Irvine	Conversion Testing of Schoolchildren after BCG Vaccination	121
Frew & Richmond	Reversions after BCG Vaccinations	121
Chakravarty	Effect of BCG Vaccination on Occurrence of Tuberculosis among Student Nurses	121





HIGH PRESSURE HIGH VACUUM

Hi Speed

Manloves

STERILIZING

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE: 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 5931-2

BACK ISSUES OF THE

Tropical Diseases Bulletin

AND

Bulletin of Hygiene

WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

"VISIJAR" respectfully request you to add the following items to their 1956 price list.

I.C.I. TENSOL CEMENT No. 7

Each pack contains 16 fl. ozs. of monomer and sufficient catalyst to make a 1–16 solution which thoroughly mixed and evacuated will polymerise at room temperature. Ideal for dough jointing and solid block embedding.

MUSEUM BOX MAKING

We now supply "PERSPEX" ready machined for fabrication at a reasonable charge of 1s. 6d. per square foot extra to our published price of each thickness. Lids and bases should be slightly greater in area to allow for thickness tolerance of side panels.

THE "VISIJAR" MUSEUM BOX ready for use is still made to your requirements in ever increasing numbers in both 5 panel and "U" form.

Price list on application

THE VISIJAR LABORATORY SUPPLY CO. LTD.
149, LONDON ROAD, CROYDON, SURREY
Croydon 8228/9

COMMUNICABLE DISEASES—*cont.*

Venereal Diseases

		PAGE
Schneeweiss & Wemmer	Comparison between Capillary and Venous Blood in Test for Syphilis	122
Schneeweiss	Serological Studies on Duration of Activity of Dried Blood for Blood Tests	123
Sinnecker	Standardization and Control in Serology of Syphilis. 1. Question of Standard Dried Sera	123
Reyn & Bentzon	Effect of Variation of Concentration and Origin of Lecithin in Cardiolipin Complement-Fixation Antigen	123
Bossak & Duncan	Method of Stabilizing Antigen Emulsion used in VDRL Syphilis Tests	123
Sinnecker	Increase in Sensitivity and Specificity of Cardiolipin Rapid Test for Syphilis	124
Foster, Nicol & Stone	Reiter's Protein Complement-Fixation Test	124
Schneeweiss	Investigations with Thermolabile Antigen derived from Syphilitic Testis (Rabbit)	124
Fiumara & Hill	Negative Reagin Tests in Marital Partner of Patient with Secondary Syphilis	124
Macfarlane & Rannie	Gummatous Osteitis of Skull	124
Dallas	Penicillin Treatment Failures in Male Gonorrhoea	125
Gartman	Studies in Prostatitis	125
Erskine	Lymphogranuloma Venereum	125
Mollaret	Cat-Scratch Disease and Lymphogranuloma Venereum	125
Nicol	Diagnosis of *Trichomonas vaginalis* Urethritis in Male as Routine Clinic Procedure	126
Jíra	*Trichomonas vaginalis* Infection in Male	126

Other Communicable Diseases

Tompkins	Neo-natal Tetanus in Nigeria	126
Phadke, Godbole & Pande	Tetanus in Paediatric Practice	127
Van Rootselaar	Umbilical Tetanus treated with Chlorpromazine	127
Miller & Stoelting	Recent Evaluation of Treatment of Tetanus	127

Zoonoses

Carithers	Pets in Home: Incidence and Significance	128
Alivisatos, Derdemesis & Edipides	Studies on Brucellosis with *Brucella*-Coombs-Test	128
Peery & Evans	Brucellosis and Heart Disease. III. Chronic Valvular Heart Disease after Nonfatal Brucellosis	129

DISEASES DUE TO FUNGI

Benedek	Selective, Chemical Epilation in Treatment of Tinea capitis as contrasted with Diffuse X-ray Epilation	129
Fowler	*Candida albicans* Urethritis	130
Reid, Cable & Laurenson	Histoplasmosis in New Zealand	130

RHEUMATIC DISEASES

Hallidie-Smith & Bywaters	Differential Diagnosis of Rheumatic Fever	131
Kaplan	Oral Phenoxymethyl Penicillin Therapy in Prophylaxis of Recurrent Rheumatic Fever	131

HEART DISEASE

Puffer & Verhoestraete	Mortality from Cardiovascular Diseases with special reference to Atherosclerotic Heart Disease	131

OCCUPATIONAL HYGIENE

Ministry of Labour and National Service	Annual Report of Chief Inspector of Factories for 1957	132
Swann	Results from Periodical Medical Examination of Executives in Industry	132
Norman	Health of Bus Drivers	132
Glorig & Summerfield	Noise—is it a Health Problem?	133
Landwehr & Wiegand	Exposure of Roasters to Silicosis in Siegerland Iron ore Mines	133
Schwarz & Merker	Electron Microscope Observations of Connective Tissues of Lung, Mesentery and Omentum of Rats	133
Mosinger	Pathogenesis of Silicosis. Rôle of Neuro-Ergonal System	134

OCCUPATIONAL HYGIENE—*cont.*

PAGE

Kamohara ... Production of Antibody by Quartz administered parenterally ... 134
Clerici & Bairati ... Action of Quartz on Reconstitution of Collagen Fibrils from Solutions ... 135
Hasselt: Institut d'Hygiene des Mines ... Action of Dusts and Drugs on Respiratory Function. 6. Study of Acetylcholine Aerosols in Group of 182 Coal-Miners ... 135
Schepers ... Influence of Fiberglas-Plastic Dust on Tuberculosis ... 135
Morrow & Kantor ... Silicotuberculosis; Medical and Combined Medical-Surgical Therapy ... 135
Williams & Zohman ... Method for Estimation of Diffusing Capacity of Lung in Subjects without Airway Obstruction ... 136
Goldsmith ... Simple Test of Maximal Expiratory Flow for detecting Ventilatory Obstruction ... 136
Simpson ... Chronic Bronchitis and Emphysema ... 136
Lauer ... Air-Jet Sieve for Sieve Analysis ... 137
Peter ... Dust Suppression Problems in Stone Industry ... 137
Bowker ... Liberation of Phosphine in machining of Spheroidal Graphite Iron ... 137
Fautrel ... Early Detection of Occupational Lead Poisoning ... 137
Zeglio ... Late Results in Mercurial Poisoning ... 138
Hueper ... Experimental Studies in Metal Cancerigenesis. X. Cancerigenic Effects of Chromite Ore Roast deposited in Muscle Tissue and Pleural Cavity of rats ... 138
Paterni ... Blood Dyscrasias due to Aromatic Hydrocarbons ... 139
Saita & Moreo ... Free Erythrocytic Porphyrins, Coproporphyrinuria and Sideraemia in Case of Sulphohaemoglobinaemia due to Acute Nitrochlorobenzol Poisoning ... 139
Widmann ... Acute Renal Failure due to Carbon Tetrachloride Poisoning 140
Williams ... Carbon Dioxide Poisoning ... 140
Floyd & Stokinger ... Toxicity Studies of Certain Organic Peroxides and Hydroperoxides ... 141
Speck & Maaske ... Effects of Chronic and Acute Exposure of Rats to Endrin ... 141
J. Amer. Med. Ass. ... Occupational Dermatoses ... 141
Smith ... Industrial Skin Disease—Prescribed Disease 24b. ... 142
Molloy ... Skin Disease in Group of Factory Workers ... 142
Knight ... Dermatitis; Experience of Ammunition Plant ... 142
Schneider & Tronnier ... Protective Action against Real Sunlight of Esters and Amides of p-Methoxycinnamic Acid ... 143
Barkow ... Contra-Indication to Use of Barrier Creams containing Silicones ... 143
Weitgasser ... Prevention of Industrial Dermatitis by Pre-Employment Dermatological Examinations ... 143
Bull. Schweitz. Akad. Med. Wiss. Symposium on Noxious Effects of Low Level Radiation ... 143

SANITATION

Water

Buttiaux ... Faecal Streptococci in Drinking-Water ... 145

FOOD AND NUTRITION

Food Poisoning

Machay-Scollay ... 2 Cases of Botulism ... 145
Demarchi, Mourgues, Orio & Prévot ... Botulism in Man caused by *Clostridium botulinum* ... 145
Banner & Boroughs ... Toxins of Poisonous Fishes ... 146

BACTERIOLOGY AND IMMUNITY

General

Haenel, Feldheim & Müller-Beuthow ... Ecology of Human Microbial Flora ... 146
Haenel & Müller-Beuthow ... Post Mortem Investigation of Bacterial Flora of Human Body ... 146
Richardson & Jones ... Bacteriological Census of Human Saliva ... 147
Ostrom, Wolochow & James ... Experimental Epidemiology of Respiratory Disease. IX. Recovery of Air-borne Bacteria from Oral Cavity of Humans ... 147
Ortali ... Method for Blood Culture ... 147
Harada ... Gram Differentiation without Use of Iodine ... 147

BACTERIOLOGY AND IMMUNITY—*cont.*

General—*cont.*

		PAGE
Linz & Lecocq	Fate of Bacteria introduced into Peritoneal Cavity of Guineapig	148
Goldberg, Watkins, Boerke & Chatigny	Use of Rotating Drum for Study of Aerosols over Extended Periods of Time	148
Schwabacher, Salsbury & Fincham	Blankets and Infection: Wool, Terylene or Cotton?	148
Pressley	Fibre Composition of Hospital Dust	149
Bate & James	*Salm. typhimurium* Infection Dust-Borne in Children's Ward	149
Ranger & O'Grady	Dissemination of Micro-organisms by Surgical Pump	149
Macpherson	Oxygen Therapy—Source of Hospital Infections?	149

Bacteriostatic and Bactericidal Substances: Disinfection

Proc. Roy. Soc. Med.	Symposium on Epidemiological Risks of Antibiotics	149
Váczi, Barsy & Kubinyi	Changes in Antibiotic Sensitivity of Pathogenic Bacteria in 1953–6	150
Boyer	Comparison of Activity of Different Antibiotics in Experimental Infection of Rats and Mice	150
Hugo	Penicillin-Induced Round Bodies in Gram-Negative Bacteria	150
Eisenberg, Weiss & Flippin	Influence of Penicillin Therapy on Emergence of Klebsiellae in Sputum	150
Kaipainen & Widholm	Toxicity of Penicillin to Guineapigs	151
McFarland	Reactions to Benzathine Penicillin	151
Hsu & Evans	Untoward Reactions to Benzathine Penicillin G in Study of Rheumatic-Fever Prophylaxis in Adults	151
Yeh	Peripheral Gangrene and Haemorrhagic Purpura due to Penicillin Sensitivity	151
Zimmerman	Penicillinase-Proved Allergy to Penicillin in Poliomyelitis Vaccine	151
Becker	Treatment of Penicillin Reactions: Use of Penicillinase	151
Zwart Voorspuij & Bokma	Simultaneous Activity of 2 or Several Anti-Microbial Substances. Antibacterial Activity of Penicillin-Streptomycin-Chloramphenicol Combination on *H. influenzae in vitro*	152
Bowman & Holdowsky	Survival of Bacteria in Dihydrostreptomycin Solutions for Injection	152
Rubin, Weisberger, Botti & Storaasli	Changes in Iron Metabolism in Early Chloramphenicol Toxicity	152
Kunin, Jones & Finland	Enhancement of Tetracycline Blood Levels	152
Zischka & Prohaska	Fate of Ingested *E. coli* Resistant to Tetracycline during Administration of Tetracyclines	153
Lutz, Witz & Schaeffer	Evolution of Resistance of Genus *Proteus* to Routine Antibiotics, 1950–8. *In vitro* Activity of Novobiocin, Kanamycin, Nitrofurantoin and Sulphonamides	153
Day, Conrad & Moore	Immunothrombocytopenia induced by Novobiocin	153
Seigneurin, Magnin & Fils	Growth-Curves of *Staphylococcus* Strain in Medium containing Erythrocytes which have adsorbed Antibiotic	153
Jones & Finland	*In vitro* Observations on A-8506 (Bryamycin)	154
Parfentjev	Yeast Antibiotic with Therapeutic and Prophylactic Properties	154
Esseller, Hunziker & Goldsand	Clinical Experiences with Orisul, Long-Acting Sulphonamide	154
Goldhammer	Clinical Pharmacology of New Sulphonamide ("Orisul")	154
Bachmann, Pauly & Schmidt	Preliminary Clinical Results with New Sulphonamide ("Orisul")	155
Neipp, Padowetz, Sackmann & Tripod	New Sulphonamide Derivatives: Relations between Blood Concentration and Degree and Duration of Therapeutic Effect	155
Petrie & Roman	Chlorine Sanitizing Compounds	155
McCarthy & Hinshelwood	Action of 2 Antibacterial Agents on Growth of *Bact. lactis aerogenes*	156
Muroma	Bactericidal Action of Salts of Rare Earth Metals	156
Brumfitt, Wardlaw & Park	Development of Lysozyme-Resistance in *Micrococcus lysodiekticus*	156

Individual Bacteria

Robinson	Isolation of Enteric Organisms from Sewage and Development of "Sewage Pad" Technique	157
Ho & Kass	Haemolytic Anaemia in Rabbits after Injection of Bacterial Endotoxin	157
Schmidt & Lenk	Results of Phage-Typing of *Salm. paratyphi B* in Berlin	157
Fukuda, Sasahara, Kitao, Tanigawa, Fukumi & Murata	New *Salmonella* Type: Salmonella Miyazaki	157

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Erlandson & Mackey	Growth and Manometric Studies on Carbohydrate Utilization by *Shigella flexneri*	158
Formal, Dammin, Labrec & Schneider	Experimental Shigella Infections	158
Coffin & Swecker	2 American Strains of *Shigella flexneri* resistant to Common Antibiotics	158
Banerjea	Variations in Protein and Amino-Acid Contents between Smooth and Rough Forms of Certain Serotypes of *E. coli* and relation to DNA Contents	158
Gupta, Gupta & Barua	Haemagglutination by Strains of *E. coli* isolated from Cases of Urinary Infection	158
Karakašević	Agglutinins in Faeces of Infants suffering from Infectious Enteritis caused by *E. coli*	158
Edwards	Production of High-Titre Diphtheria Toxin in Baffled Shake Flasks	159
Marks & Thomas	Cultivation of Tubercle Bacilli	159
Ball	Trial of Kirchner's Medium for Isolation of *Myco. tuberculosis*	160
Middlebrook & Cohn	Bacteriology of Tuberculosis	160
Marshall	Effect of Contamination on Löwenstein-Jensen Medium	161
Gale	Control of Contamination in Cultivation of Tubercle Bacilli	161
Ramakrishnan, Indira & Sirsi	New Growth-Factor for *Myco. tuberculosis*	161
Melvin & Mac Vandiviere	Titration of Cord Formation as related to Virulence of Mycobacteria	162
Bowman	Mycobacterial Phage-Host Systems	162
Acharya, Sullivan & Robson	Immunity in Experimental Tuberculosis	162
Gray & Affleck	Relationship of Allergy to Gross Lung Disease and Culturable Bacilli in Tuberculous Mice	163
Gray	Immunity, Natural Anergy and Artificial Desensitization in Experimental Tuberculosis	163
Burrell & Rheins	Production of Anti-Lung Substances in Rabbits by Homologous Tuberculosis Tissue Antigens	164
Pital, Pital & Leise	Method for determining Drug Susceptibility of *Myco. tuberculosis*	164
Mitchison, Selkon, Hay, Stewart & Wallace	Tests of Streptomycin Sensitivity of *Myco. tuberculosis*	165
Tsukamura & Noda	Mechanism of Combined Effect of Anti-tuberculous Drugs	165
Patnode & Hudgins	Effect of Kanamycin on *Myco. tuberculosis in vitro*	165
Barry & Conalty	Antituberculosis Activity in Phenazine Series	166
Froelich	Effect of 5-Heptyl-2-Thiohydantoin on Experimental Tuberculosis	166
Bojalil, Bastarrachea, Cerbón & Pérez-Tamayo	Distribution of Tubercle Bacilli resistant to Streptomycin and Isoniazid within Lung	166
Hollinger & Lindberg	Delayed Recovery of Streptococci from Throat Swabs	167
Esseveld, Daniëls-Bosman & Leijnse	Camp Reaction and its Application to Human β Haemolytic Streptococci	167
McCarty	Chemical Basis for Serological Specificity of Group A Streptococcal Carbohydrate	167
Lancefield	Occurrence of R Antigen Specific for Group A Type 3 Streptococci	167
Barkulis, Walsh & Ekstedt	Streptococcal Cell Walls. II. Type-Specific Antigenicity in Rabbits	168
Halbert	Precipitin Analysis in Agar for Study of Human Streptococcal Infections. III. Purification of Some Antigens detected by these Methods	168
Ogburn, Harris & Harris	Extracellular Antigens in Steady-State Cultures of Haemolytic Streptococcus: Production of Proteinase at Low *p*H	168
Kellner, Freeman & Carlson	Neutralizing Antibodies to Streptococcal Diphosphopyridine Nucleotidase in Serum of Experimental Animals and Human Beings	168
Kohoutová	Effect of Monovalent Cations on Type Specificity Transformation in Pneumococci	168
Hennessey & Miles	*Staphylococcus aureus* Type 80 and Human Infections in Uganda	169
Kienitz	Enterotoxin in Staphylococci in White Mice	169
Vogelsang	Carriage of Phage Patterns of Pathogenic Staphylococci in Medical Students	169
Ramsey	Response of *Micrococcus pyogenes* to Low Concentrations of Chloramphenicol	169

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Carrère, Roux & Serre	*Brucella* Antigens. Study of Endo-Antigens, of Glucidic-Lipidic-Polypeptidic Antigens by means of Diffusion in Agar-Gel	169
Holland & Pickett	Cellular Basis of Immunity in Experimental *Brucella* Infection	170
Van Drimmelen & Steyn	Keeping Quality of Freeze-Dried *Brucella abortus* Strain 19 Vaccine	170
Parnas, Bednarski, Kozak & Galinski	Sensitivity of Strains of *Brucella* to Antibiotics	170
Morris	Selective Media for some *Pasteurella* Species	170
Kleinmaier	O-Group Determination of *Pseudomonas* Strains by means of Slide-Agglutination	171
Kovtunovich	Method of detecting *Clostridium botulinum* Toxin	171
Orlans & Jones	Some Soluble Antigens of *Clostridium welchii* Types B, C and D	172
Berger	Sensitivity of some Non-Sporogenous Anaerobes to Spiramycin *in vitro*	172

Bacteriophages

Deering & Christian	Action of T2 Bacteriophage on Filamentous *Escherichia coli*	173
Maio & Zahler	Host-Induced Modification of T2 Bacteriophage	173
Edgar & Steinberg	Origin of High Negative Interference over Short Segments of Genetic Structure of Bacteriophage T4	173
Keller	Passage of Bacteriophage Particles through Intact Skin of Mice	174

Viruses

Orfila	Sensitivity of Murine Kidney Cell Cultures to Different Viruses	174
Malherbe & Harwin	Neurotropic Virus in African Monkeys	174
Hamparian, Müller & Hummeler	Elimination of Nonspecific Components from Viral Antigens by Fluorocarbon	174
Chardonnet	Experimental Immunity to Mumps in Guineapigs. I. Factors Influencing Production of Complement-Fixing Antibodies after Primary Immunization. II. Complement-Fixing Antibody Response after Booster Doses	175
Stoker, Smith & Ross	Electron Microscope Studies of HeLa Cells infected with Herpes Virus	175
Stoker & Ross	Quantitative Studies on Growth of Herpes Virus in HeLa Cells	175
Ross & Orlans	Redistribution of Nucleic Acid and Appearance of Specific Antigen in HeLa Cells infected with Herpes Virus	176
Beswick	Experimental Herpes Simplex Infection in Baby Mouse	176
Takátsy, Barb & Farkas	Antigenic Structure of Influenza Virus Strains isolated in Hungary in 1957	176
Koch & Csonka	Effects of Formaldehyde on Influenza Virus. II. Effects on Infectivity of Virus	176
Nász, Tóth & Lengyel	Adenoviruses isolated from Excised Tonsils	176
Reichelderfer, Chanock, Craighead, Huebner, Turner, James & Ward	Infection of Human Volunteers with Type 2 Haemadsorption Virus	176
Shaver, Barron & Karzon	Cytopathology of Human Enteric Viruses in Tissue Culture	177
Alexander, Koch, Mountain & Van Damme	Infectivity of Ribonucleic Acid from Poliovirus in Human Cell Monolayers	177
Bárdoš	Use of Suckling White Rats in Virological Diagnosis of Tick-Borne Encephalitis and Equine Encephalomyelitis	177
Bárdoš	Natural Foci of Western Type of N. American Equine Encephalomyelitis in Czechoslovakia. V. Isolation of WEE Virus from Brain of *Apodemus flavicollis*	178
Hammon, Schrack & Sather	Arthropod-Borne Virus Infections in Philippines	178
Hotta	Interference Diagnosis Method of Japanese Encephalitis Virus on Developing Egg and Tissue Culture of Chick Embryo	178

Immunity

Makinodan & Gengozian	Primary Antibody response to Distantly Related Heterologous Antigen during Maximum Depression Period after Varying Doses of X Radiation	179

BACTERIOLOGY AND IMMUNITY—*cont.*

Immunity—*cont.*

PAGE

Goncharenko ... ... Influence of Ionizing Radiation on Antitetanus Antitoxic Immunity 179

Finger & Kabat ... ... Comparison of Human Antisera to Purified Diphtheria Toxoid with Antisera to Other Purified Antigens by Quantitative Precipitin and Gel Diffusion Techniques ... 179

Cowan ... ... Interpretation of Properdin Levels determined by Phage Neutralization Technique 180

Nelson ... ... Mechanism for Properdin System 180

Wilhelm; Elder; Mill; Sparrow; Mackay; Miles ... ... Enzyme-Like Globulins from Serum reproducing Vascular Phenomena of Inflammation. IV. Activable Permeability Factor and its Inhibitor in Serum of Rat and Rabbit. V. Activable Permeability Factor in Human Serum. VI. Isolation and Properties of Permeability Factor and its Inhibitor in Human Plasma 180, 181

MISCELLANEOUS

World Health Organization ... Publications of WHO 1947–57. A Bibliography 181

BOOK REVIEWS

Taylor ... ... Waters and Water Supplies 182

Rhodes & Van Rooyen ... ... Virology for Students and Practitioners of Medicine 182

Drummond & Wilbraham ... ... The Englishman's Food 183

Hallauer & Meyer ... ... Handbook of Virus Research 183

Oswald ... ... Recent Trend in Chronic Bronchitis 183

Meiklejohn ... ... Life, Work and Times of Charles Turner Thackrah 184

Keevil ... ... Medicine and the Navy 1200–1694 184

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover

HIS FUTURE

is in your hands

Will this child ever reach his 15th birthday, or will he be a victim of malaria? His future is in your hands because malaria *can* be controlled.

Five years' experience has shown 'Daraprim' to be a highly effective agent in the control of the disease. Moreover, when administered to an entire community, it is capable of breaking the malarial cycle since it interrupts the development of the parasite in the mosquito.

'Daraprim' is highly potent but tasteless and has proved an excellent suppressant in a weekly adult dosage of only 25 mgm. It is supplied in the form of 25 mgm. tablets in strip-packs of 6 and 30 for individual use, and in tins of 1,000 for larger users.

In the French Union, Tunisia and Morocco pyrimethamine is available under the trade name 'Malocide'.

'DARAPRIM' BRAND

PYRIMETHAMINE

BURROUGHS WELLCOME & CO (THE WELLCOME FOUNDATION LTD.) LONDON

Associated Houses:
AUCKLAND BOMBAY BUENOS AIRES CAIRO DUBLIN JOHANNESBURG KARACHI MONTREAL NAIROBI NEW YORK RIO DE JANEIRO ROME SYDNEY

Erwinia Chrysanthemi:
A plant pathogen causing Stem Rot in Chrysanthemums and Soft Rot in fleshy vegetables

a cure for chrysanthemums

When your business is selling Chrysanthemums, Stem Rot can be disastrous. Faced with this menace a certain large firm of growers turned to us. The problem was to isolate infected cuttings early enough to prevent cross infection in the Nursery.

Now, in this one business alone upwards of a million cuttings a year are being laboratory tested in Oxoid Culture Media before rooting, to eradicate infected stock.

FOR PROGRESSIVE LABORATORIES **OXOID** REGD. TRADE MARK CULTURE MEDIA

The use of Oxoid Culture Media ensures constant quality and uniformity in your laboratory technique. Absolutely reliable, quick, convenient and economical, Oxoid Culture Media are available in tablet or granular form. Full details from:

OXOID DIVISION OF OXO LTD., Thames House,
Queen Street Place, London, E.C.4 (CENtral 9781)

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with :—

Public Health
Social Services
  Maternal and Child Health
  Health of Nurses, Students and Hospital Staffs
  Care of Old Persons and the Chronically Ill
Vital Statistics and Epidemiology
Communicable Diseases
  (except Tropical Diseases)
Diseases due to Fungi
Rheumatic Diseases
Heart Disease
Cancer
Miscellaneous Diseases
Dental Hygiene
Mental Hygiene
Occupational Hygiene
Occupational Psychology
Atmospheric Pollution
Physiology as Applied to Hygiene
Hygiene of Buildings
Sanitation
Port. Ship and Aviation Hygiene
Infestation and Disinfestation
Food and Nutrition
Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with :—

Protozoal Infections
  (Malaria, trypanosomiasis, leishmaniasis and others)
Rickettsial Diseases
Tropical Virus Diseases
  (Yellow fever and others)
Tropical Bacterial Diseases
  (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
Helminthic Diseases
Tropical Deficiency Diseases
Other conditions related to warm climates

Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE
LAMONT & MACQUEEN ... ... One Approach to Health Education 185

MATERNAL AND CHILD HEALTH

TOWNSEND ... ... Radiation Hazards to Foetus 185
HOWORTH ... ... Screening Tests of Hearing in Pre-School Children ... 186
ARCHER ... ... Word Tests as Method of Screening for Deafness in Schoolchildren 186
GREENBERG, JACOBZINER, MCLAUGHLIN, FUERST & PELLITTERI ... Study of Pica in relation to Lead Poisoning 186

VITAL STATISTICS AND EPIDEMIOLOGY

DE ALMEIDA & RODRIGUES ... ... Infant Mortality in Brazil, 1951–5 187

COMMUNICABLE DISEASES

Infective Diseases

BANKS ... ... Infection across Intact Conjunctiva 187
WEBSTER ... ... Staphylococcal Diarrhoea 187
BURNETT, MCDONALD & TIMBURY ... Post-Operative Wound Infection. Sepsis Rate in Surgical Unit 188
VERDE ... ... Clinical and Laboratory Diagnosis of Principal Virus Diseases of Man 188
TASMAN, MINKENHOF, VINK, BRANDWIJK & SMITH ... ... Pathogenesis of Diphtheria. V. Importance of Intravenous Injection of Diphtheria Serum 188

Malaria in Saudi Arabian Oases

control regained over the vector, Anopheles stephensi

Anopheles stephensi is the most important single malaria vector in the Persian Gulf and owing to its attacks the disease is hyperendemic in the large Saudi Arabian oases of Qatif, near Dhahran, and Al-Hasa, each of which provides numerous perfect breeding sites for the vectors in complex systems of wells, springs, irrigation channels, drainage ditches, seepage areas, etc. Both oases are heavily populated. In the Al-Hasa oasis for example live some 160,000 people at a density of about 2,300 per sq. mile, a dangerously high concentration considering the enormous numbers of malaria vectors present: as many as 500-600 blood-filled *stephensi* females have been collected from one square yard of wall surface within a fifteen minute period. Paradoxically, only a few miles away in the inhospitable desert, travellers are entirely safe from infection.

Measures of control against *Anopheles stephensi* were first introduced in the fall of 1948, when a residual-spray campaign was commenced. Results were immediately successful, with almost spectacular decreases in malaria morbidity, mortality, spleen and parasite rates throughout the years 1949-1953. Then however the rates began to climb again, and it was noted that *Anopheles stephensi* were reappearing in treated buildings after only a few weeks. Clearly, the vector was developing resistance to the insecticide used, and the disease was no longer under control.

In 1955 dieldrin, most persistent of all modern insecticides, was used on an oasis-wide scale, and control was swiftly regained. Since then the morbidity rates have steadily continued to decline. In addition, there is no sign of any development of a dieldrin-resistant strain of *stephensi*. In this campaign, which is being directed by the Saudi Arabian Government, dieldrin is applied at yearly intervals.

dieldrin

dieldrin, aldrin, endrin and Phosdrin are SHELL *insecticides for world-wide use*

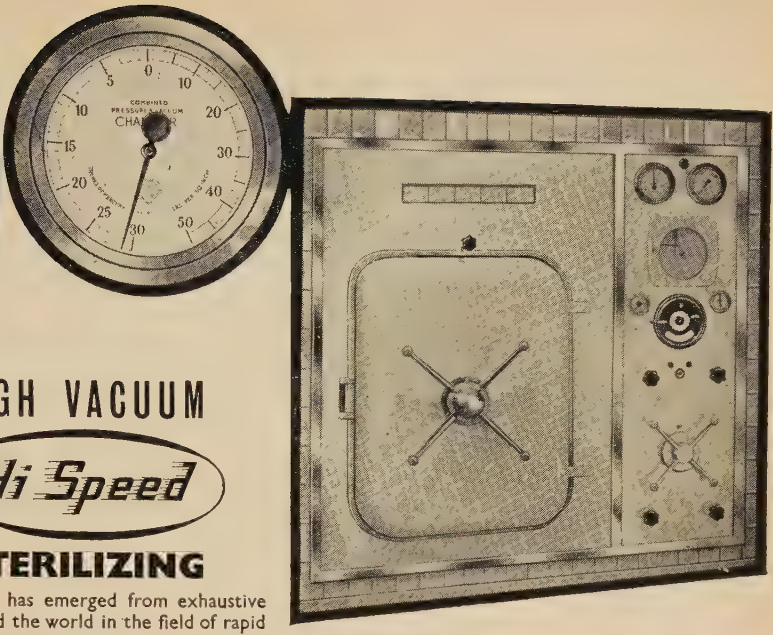
For further information apply to your Shell Company.
Issued by The Shell Petroleum Company Limited, London, E.C.3, England.

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

PAGE

Ferraroni ... Amelioration of Diphtheria Carriers by Different Forms of Treatment ... 188
Johnson & Hall ... Rubella Arthritis; Cases studied by Latex Tests ... 189
Anderssen ... Fatal Cases of Mumps with Orchitis ... 189
Ritter ... Mumps Meningoencephalitis in Children ... 189
Möbest ... Antibody Formation in Mumps developing after Scarlet Fever ... 189
Felkai ... Evaluation of New Type of Mumps Vaccine ... 189
Petrilla & Barsy ... Vaccination against Pertussis ... 190
Pozsgi, Soare, Faur & Ţigoiu ... Preventive Anti-*pertussis* Vaccinations in Rumania ... 190
Lupaşcu & Olariu ... Chemoprophylaxis of Whooping-Cough ... 190
Proc. Roy. Soc. Med. ... Discussion on Influenza ... 190
Owen, Parkes, Bullock & Thorburn ... Asian Influenza in RAF School ... 190
Woodall, Rowson & McDonald ... Age and Asian Influenza, 1957 ... 191
Harboe ... Asian Influenza Pandemic in Norway, 1957 ... 191
Heller, Körlof, Mörner & Zetterberg ... Influenza Epidemic in Sweden, 1957–8; Vaccination ... 191
Ohela & Kaipainen ... Influenza Mortality in Finland, 1957 ... 192
Körlof, Mörner, Zetterberg, Böttiger, Heller, Johnsson & Backelin ... Influenza Epidemic in Sweden, 1957–8; Epidemiology ... 192
Kanagaratnam ... Influenza Epidemic in Singapore, 1957 ... 192
Beaven & Platts ... 1957 Influenza Epidemic; Analysis of Patients with Respiratory Tract Infection ... 192
Langmuir ... Asian Influenza in U.S.A. ... 193
Dauer ... Mortality in 1957–8 Influenza Epidemic ... 193
Davenport & Hennessy ... Clinical Epidemiology of Asian Influenza ... 193
Bendkowski ... Asian Influenza (1957) in Allergic Patients ... 193
Buebendorf, Carson, Cooper, Moynihan & Yankee ... Asian Influenza, 1957; Study of 150 Patients ... 194
Walsh, Burch, White, Mogabgab & Dietlein ... Effects of Type A Influenza on Cardiovascular System of Man ... 194
Oswald, Shooter & Curwen ... Pneumonia complicating Asian Influenza ... 194
Kapila, Kaul, Kapur, Kalayanam & Banerjee ... Neurological and Hepatic Disorders associated with Influenza 195
Meiklejohn & Morris ... Influenza Vaccination ... 195
Van der Veen & Van der Ploeg ... Pharyngoconjunctival Fever caused by Types 3 and 4 Adenovirus in Netherlands ... 195
Gundelfinger, Hantover, Bell, Loosli & Rowe ... Trivalent Adenovirus Vaccine for Prevention of Acute Respiratory Disease in Naval Recruits ... 196
Tyrrell & Bynoe ... Inoculation of Volunteers with JH Strain of New Respiratory Virus ... 196
Jackson, Dowling & Anderson ... Neutralization of Common Cold Agents by Pooled Human Globulin ... 196
Kringelbach & Winge ... Staphylococcal Pneumonia in Infancy ... 196
Leibowitz ... Hospital Precautions against Spread of Acute Viral Hepatitis 197
Mason & Adams ... Infectious Mononucleosis ... 197
Bender ... Haematologic and Serologic Findings in Diagnosis of Infectious Mononucleosis ... 197
Philips ... Acute Meningococcaemia with Symmetric Peripheral Gangrene ... 198
Perou, Fielding & Nelson ... Leptomeningitis due to *Gaffkya tetragena* ... 198
Benediktsson, Gudnadóttir & Pétursson ... Epidemic of Non-bacterial Meningitis in Iceland ... 198
Just & Berger ... Abacterial Meningitis and Meningo-encephalitis, Basle, 1957 199
Wiesmann, Hegglin & Wiesmann Aetiology and Differential Diagnosis of Serous Meningitis ... 199
Public Health Lab. Service ... Poliomyelitis Virus in Normal Children under 5 Years ... 199
Zalmanzon, Rappoport, Itselis & Talinskaia ... Dissemination of Poliomyelitis Virus in Environment of Patient between Epidemics ... 199
Peczenik & Duttweiler ... Preventable Outbreak of Poliomyelitis ... 200
Dick; Dane; Briggs; Nelson ... Vaccination against Poliomyelitis with Live Virus Vaccines. 4. Review of Present Position. 5. Neutralizing Antibody Levels 1 Year after Vaccination ... 200
Clarke, Goffe, Stuart-Harris & Herzog ... Trial of Type III Attenuated Living Poliovirus Vaccine ... 201
Mayer ... Persistence of Viruses of Coxsackie Group in Boarding-School Children ... 201
Benda ... Examination of Presence of Coxsackie Serum Antibodies in Population ... 201
Makower, Skurska & Halazinska Transplacental Infection with Coxsackie Virus ... 202



HIGH PRESSURE HIGH VACUUM

Hi Speed

Manloves

STERILIZING

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 6931-2

BOOKS ON HYGIENE

H. K. LEWIS & Co. Ltd. can supply all Standard Works and Text-books on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request.

MEDICAL AND SCIENTIFIC LIBRARY

Annual Subscription from £1 17s. 6d.

The Library includes all standard and recent works in all branches of Hygiene and Sanitary Science. **Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

THE LIBRARY CATALOGUE revised to December 1956, containing a classified Index of Authors and Subjects. £2 2s. net; postage 2s. To subscribers to the Library, £1 5s.; postage 2s.

SECONDHAND DEPARTMENT

A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1
Telephone: EUSton 4282. Telegrams: Publicavit, Westcent, London
Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

PAGE

Gresser, Hardy & Scherer ... Growth Curve of Japanese Encephalitis Virus in Vector Mosquito of Japan ... 202
Grešíková ... Recovery of Tick-Borne Encephalitis Virus from Blood and Milk of Subcutaneously Infected Sheep ... 202
Fedorov ... Neutralizing Antibodies to Virus of Russian Spring-Summer Encephalitis in Blood of Birds ... 202
Dubov ... Tick-Borne Encephalitis in Kuznetsk Basin District ... 202
Work ... Kyasanur Forest Disease; Virological Aspects ... 203
Lakshmana Rao ... Kyasanur Forest Disease; Cases ... 203
Narasimha Murthy ... New Virus Disease—Kyasanur Forest Disease ... 203
Sidhu & Taneja ... Encephalitis Epidemic in Delhi (1954–5): I. 3-Year Follow-Up Study ... 203
Teschner ... Flies and Human Faeces; Hygienic Entomology ... 203
Stoppani ... Typhoid and Paratyphoid in Perugia in Last 17 Years ... 204
Neill, Martin, Belden & Trotter ... Epidemic of Typhoid Fever ... 204
Roberts & Barron ... Typhoid Fever with Vulvovaginitis ... 204
Ruiz Sánchez, Ruiz Sánchez, Evangelista de Huerta & Naranjo Granda ... Phenylbutazone and Chloramphenicol in Treatment of Typhoid Fever ... 205
Hudson ... Sonne Dysentery in Dartford Borough and Rural District ... 205
Realmuto ... Shigellosis in Palermo ... 205
Kratochvíl & Tarabčák ... Water Factor in Epidemiology of Dysentery ... 206
Lie Kian Joe; Sahab; Poey Seng Hin ... *E. coli* Type O111:B4 and Type O55:B5 in Indonesia ... 206
Kean & Waters ... Diarrhoea of Travellers. I. Incidence on Return from Mexico to U.S.A. ... 206

Tuberculosis

Soltys ... Public Health Aspect of Tuberculosis in Domestic Animals 206
Le Melletier ... Tuberculosis in Rural France ... 207
Yoshioka, Morooka & Kurata ... Tuberculosis Mortality in Post-War Japan ... 208
Edwards & Palmer ... Tuberculin Sensitivity. I. Preliminary Results with Purified Protein Derivatives prepared from Atypical Acid-Fast Organisms ... 208
Omland ... Tuberculin Allergy in Group of Geriatric Patients ... 209
Bourlatchenko ... Tuberculosis Infection in Carpathian Mountains ... 209
Vesselkina ... Tuberculous Infection among Medical Personnel in Moscow Clinics ... 209
Heymanson & Elphick ... Accidental Inoculation Tuberculosis ... 209
Belotte ... Primary Pulmonary Tuberculosis in African Children ... 209
Böhlau, Dennhardt & Rothe ... Metabolism in Pulmonary Tuberculosis ... 210
Nicol & Fawns ... Bromide Partition Test in Diagnosis of Non-Purulent Meningitis ... 210
Kirkaldy-Willis ... Bone and Joint Tuberculosis in Kenya ... 211
Steinbrück ... Influence of Chemotherapy on Tuberculosis Situation in Democratic German Republic ... 211
Das Neves Almeida & Das Neves Almeida ... Pantothenates of Streptomycin and Dihydrostreptomycin ... 211, 212
Bang & Strandgaard ... PAS Concentration in Blood during Treatment with Various PAS Preparations ... 212
Viallier & Cayré ... Comparative Toxicity for Rabbits of Isoniazid combined with PAS and of PAS-Isoniazid Salt ... 212
Prescott, Kauffmann, James & Stone ... Increase of Tolerated Dose of Isoniazid in Mice by Use of Certain Organic Solvents ... 212
American Trudeau Society ... BCG in Prevention of Clinical Tuberculosis ... 212
Arai ... BCG Inoculation and Tuberculin Test in Japan ... 213

Venereal Diseases

Laird ... Figures and Fancies ... 213
Tanami & Yamamoto ... Venereal Disease Problem in Japan ... 214
Wong & Wang ... Venereal Disease among Prostitutes in Taiwan ... 214
Ohno, Kato, Nagata, Hattori & Kanekawa ... Prophylactic Control of Spread of Venereal Disease through Prostitutes in Japan ... 214
Guthe ... Prevention of Venereal Infections ... 215
Allen & Tonks ... Pure Phosphatides and Serodiagnosis of Syphilis ... 215
Schmidt & Bentzon ... Rapid Plasma Reagin Test ... 215
Pavlatou, Marcelou & Triantaphylli ... Treponemal Antigen prepared from Reiter Strain in Serology of Syphilis ... 216
Daguet, Pillot & Faure ... *Treponema* Antigens used for Sero-Diagnostic of Syphilis by means of Complement-Fixation Reaction ... 216

Silence is Golden!

TRUVOX

FLOOR POLISHER/ SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:

TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

“VISIJAR” respectfully request you to add the following items to their 1956 price list.

I.C.I. TENSOL CEMENT No. 7

Each pack contains 16 fl. ozs. of monomer and sufficient catalyst to make a 1–16 solution which thoroughly mixed and evacuated will polymerise at room temperature. Ideal for dough jointing and solid block embedding.

MUSEUM BOX MAKING

We now supply “PERSPEX” ready machined for fabrication at a reasonable charge of 1s. 6d. per square foot extra to our published price of each thickness. Lids and bases should be slightly greater in area to allow for thickness tolerance of side panels.

THE “VISIJAR” MUSEUM BOX ready for use is still made to your requirements in ever increasing numbers in both 5 panel and “U” form.

Price list on application

THE VISIJAR LABORATORY SUPPLY CO. LTD.
149, LONDON ROAD, CROYDON, SURREY
Croydon 8228/9

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE
ATMOSPHERIC POLLUTION
OCCUPATIONAL PSYCHOLOGY
PHYSIOLOGY AS APPLIED TO HYGIENE
HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER) *including Index* 30/– ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET · LONDON W·C·1 *TELEPHONE: MUSeum 3041*

COMMUNICABLE DISEASES—*cont.*

Venereal Diseases—*cont.*

		PAGE
Ranque & Depieds	Influence of CO_2 on Phenomenon of Specific Immobilization of Spirochaetes	216
Hackett & Göckel	Equipment and Technique of Intramuscular Injection in Mass Treatment Campaigns against Treponematoses	217
Zółkiewicz-Rodziewicz & Rodziewicz	Treatment of Neuro-Syphilis in Lublin, 1949–54	217
Guthe, Idsöe & Willcox	Untoward Penicillin Reactions	217
Willcox	Clinical Problems in Antibiotic Treatment of Gonorrhoea	218
Willcox	Failures in Treatment of Gonorrhoea in Ethnic Minorities	218

Other Communicable Diseases

Da Motta	Tetanus; Incidence and Mortality in Portugal 1955–6	218
Takos	Tetanus as Concomitant of Work Accidents in Tropical Countries	218
Wilkens	Treatment of Tetanus with Muscle Relaxants and Artificial Respiration	219
Kranendonk	Listeriosis in Mother and Child	219
Van Driest & Kampelmacher	Meningitis due to *Listeria monocytogenes* Type II in Baby	219
Meyer & Moeschlin	Lymph Gland Puncture in Cat Scratch Disease	219

Zoonoses

Lamb	Occupational Hazards in Bone-Meal Industry	220
Green & Jamieson	Anthrax and Bone-Meal Fertiliser	220
Özlüarda	Brucellergin and Agglutination Tests in Brucellosis in Turkey	220
Akyay & Gürsel	Epidemic of Brucellosis in Turkey	220
Awad	Hepatic Function in Egyptians with Brucellosis	220
Ipp	Brucellar Spondylitis and Hepatitis	221
Broom	Leptospiral Infection Rates of Wild Rats in Britain	221
Broom & Coghlan	*Leptospira ballum* in Small Rodents in Scotland	222
Pleško, Kmety & Bakoss	Leptospiral Investigations in Region of Opava	222
Havlík & Hübner	Isolation of *Leptospira grippotyphosa* from *Mustela nivalis*	222
Laurentz	Public Health Significance of Psittacosis	222
Leachman & Yow	Epidemiology of Psittacosis and Report of Turkey-Borne Outbreak	222
Morimoto; Omori; Ishii; Matumoto; Inaba; Kurogi; Kono	Miyagawanella: Psittacosis-Lymphogranuloma Group of Viruses. 6. Detection of Indirect Complement-Fixing Antibodies against Psittacosis in Chicken Serum. 7. Psittacosis Virus in Japanese Pigeons	222, 223
Wilkens, Van Baar & Gispen	Encephalomyelitis in Case of Ornithosis	223

DISEASES DUE TO FUNGI

Inst. Pasteur: Soc. Française de Mycol. Med.	Medical Mycology	223
Walker	Medical Mycological Literature, 1946–56	224
Grin & Ožegović	Mycological Research and Literature in Yugoslavia up to 1957	224
Emmons	Association of Bats with Histoplasmosis	224
From & Alli	Tetracycline-Nystatin in Pulmonary Disease	224
Jensen	Cryptococcosis	225
Gantz, Nuetzel & Keller	Cryptococcal Meningitis treated with Amphotericin B	225
Biddle & Koenig	Agent effective against Cryptococcosis of Central Nervous System	225
Kudejko	Treatment of Actinomycosis with Nicoside in Lublin, 1953–5	225
Pimentel	Anatomo-Pathological Study of 4 Cases of Tumour-like Form of Pulmonary Aspergillosis	226

CANCER

Lancaster	Cancer Statistics in Australia	226
National Association for the Prevention of Tuberculosis	Carcinoma of Lung	226
Hoffman & Griffin	Action of Cigarette Tar and Smoke on Chemically Induced Carcinogenesis	227
Bailey & Dungal	Polycyclic Hydrocarbons in Icelandic smoked Food	227
Commins & Lawther	Volatility of 3,4-Benzpyrene in relation to Collection of Smoke Samples	227

MISCELLANEOUS DISEASES

Devadatta & Verghese	Chronic Lead Poisoning	227

OCCUPATIONAL HYGIENE

		PAGE
Hopwood	Place of Industrial Medicine in Uganda	228
Franke	Radiation Cataract: Scientific Measurement of Conditions of Work and their Hygienic Importance	228
Molfino & Odaglia	Decompression Treatment of Barotraumatic Diseases ...	228
National Coal Board	Annual Report for 1957	229
Central Mining-Rand Mines Group. Health Department	Report for 1957	229
Attinger, Goldstein & Segal ...	Mechanics of Breathing in Normal Subjects and in Patients with Cardiopulmonary Disease	229
Ravin & Stein	Bedside Measurement of Alveolar Carbon Dioxide Tension	230
McGregor	Value of Index of Maximal Expiratory Force in Interpretation of Tests of Maximal Ventilatory Capacity	230
Sartorelli, Grieco & Tomasini ...	Study on Pulmonary Elasticity in Emphysematous Patients by determining Curve of Relaxation Pressure	230
Sartorelli & Grieco	Respiratory Dead Space and Alveolar Ventilation in Emphysematous and Silicotic Patients	230
Magistretti, Lo Martire, Peirone & Sartorelli	Pulmonary Venous Admixture in Emphysematous, Silicotic and Silicotuberculotic Patients	231
Magistretti, Sartorelli, Brina & Rubini	Frequency of ECG Signs of Right Ventricle during Work in Normal and Silicotic Patients	231
Wright	New Nebulizer	232
Roach	Counting Errors Due to Overlapping Particles in Thermal Precipitator Samples	232
Hoffmann	Measurement of Dust Emission and its Statistical Evaluation	232
Luhr	Quantitative Examination of Phagocytosis of Various Coal Dusts, Quartz Dust and Diamond Dust in Tissue Cultures	232
Barhad, Petresco & Sarf	Respiratory Modifications due to Dust	232
Morrow & Gibb	Deposition of Submicronic Aerosol in Respiratory Tract of Dogs	233
Morrow, Mehrhof, Casarett & Morken	Aerosol Deposition in Human Subjects	233
Nagelschmidt, Nelson, King, Attygalle & Yoganathan	Recovery of Quartz and other Minerals from Lungs of Rats. Study in Experimental Silicosis	233
Glömme, Holmquist & Swensson ...	Toxicity of Silicic Acid	234
Schepers; Delahant; Fear; Schmidt; Bailey; Gockeler; Gay	Biological Action of Degussa Submicron Amorphous Silica Dust. IV. Studies on Guineapigs infected with Tuberculosis. V. Injection Studies	234
Englebrecht, Yoganathan, King & Nagelschmidt	Fibrosis and Collagen in Rats' Lungs produced by Etched and Unetched Free Silica Dusts	234
Watanabe	Influence of Radio-active Dust on Experimental Pneumoconiosis	235
Vincent, Einbrodt, Sperling, Fitzek & Bernhard	Silicosis. Radio-activity of Dusts isolated from Lungs of Silicotic Coal-Miners in Ruhr	235
Schrödter & Saitmacher	Radiographical Demonstration of Experimental Silicosis in Guineapigs	235
Krümmel	Reaction of Eyes of Experimental Animals to Silica ...	235
Lüchtrath, Friebel & v. Graevenitz	Prolonged Administration of Periston in Experimental Silicosis	236
Trasko	Silicosis, a continuing Problem	236
Doyle, Flinn & Dreessen	Pneumoconiosis Problem in U.S.A.	237
Appelman	Special Forms of Silico-Tuberculosis	237
Uytdenhoef	Pneumoconiosis in Porphyry Quarries	238
Schmid	Silicosis in Foundries	238
Higgins & Cochran	Respiratory Symptoms, Bronchitis and Disability in Agricultural Community in Dumfriesshire	238
Worth, Ibel, Durben & Gasthaus	Silicosis, Bronchitis and Emphysema in Coal-Miners in Lower Rhine Area	239
Hoffmann & Worth	Nasal Sinus Changes in Coal-Miners in Lower Rhine Area	239
King, Yoganathan, Harrison & Mitchison	Experimental Infective Pneumoconiosis. V. Massive Fibrosis of Lungs produced by Coal-Mine Dust and *Myco. tuberculosis*	239
Müller & Hübner	Pneumoconiosis caused by Talc	239
Gärtner & Herzog	Pathogenesis of Pneumoconiosis in Worker in Iron Mine ...	240
Ruždić & Črepinko	Inhibition of Catalase by Lead	240
Dinman, Evans & Linch	Organic Mercury. Environmental Exposure, Excretion and Prevention of Intoxication in its Manufacture	240
Matthes, Kirschner, Yow & Brennan	Acute Poisoning associated with Inhalation of Mercury Vapour	240
Woodcock	Effect of Calcium Disodium Versenate on Chronic Mercury Poisoning	241

OCCUPATIONAL HYGIENE—*cont.*

PAGE

Bister, Klavis, Köhler & Wittgens ... Industrial Poisonings due to Zinc Chromate Paints 241
Schrenk & Schreibeis ... ... Urinary Arsenic Levels as Index of Industrial Exposure ... 241
Doll ... ... Cancer of Lung and Nose in Nickel Workers 241
Morgan ... ... Respiratory Cancer in Nickel Workers 242
Williams ... ... Pathology of Lungs in 5 Nickel Workers 242
West; Sunderman; Sunderman Nickel Poisoning. VII. Therapeutic Effectiveness of Alkyl Dithiocarbamates in Experimental Animals exposed to Nickel Carbonyl. VIII. Dithiocarb: New Therapeutic Agent for Persons exposed to Nickel Carbonyl 242, 243
Wood, Ball & Teare ... ... Case of Beryllium Disease 243
Strenge ... ... Method for Determination of Small Amounts of Selenium in Air and in Biological Material 243
Ztschr. f. Präventivmed. ... ... Hazards of Poisoning by Industrial Solvents 243
Bättig, Grandjean, Rossi & Rickenbacher ... ... Toxicity of Trimethylbenzol 244
Ehrlicher ... ... Benzidine: Industrial Medical Aspect 244
Wolkowa ... ... Effect of Ascorbic Acid on Experimental Aniline Poisoning in Animals kept at High Atmospheric Temperatures ... 245
Challen, Hickish & Bedford ... Chronic Chloroform Intoxication 245
Deichmann, Keplinger & Lanier ... Acute Effects of Nitro-Olefins upon Experimental Animals ... 245
Fairchild & Stokinger ... ... Toxicologic Studies on Organic Sulphur Compounds. I. Acute Toxicity of some Aliphatic and Aromatic Thiols ... 246
Dunlap, Kodama, Wellington, Anderson & Hine ... ... Toxicity of Allyl Alcohol. I. Acute and Chronic Toxicity 246
Challen, Hickish & Bedford ... Health Hazards in Inert-Gas Tungsten-Arc Welding Shop 247
Dalhamn & Gerhardsson ... ... Hygienic and Toxicological Study of Ozone 247
Conley ... ... Morbidity and Mortality from Economic Poisons in U.S.A. 247
Ministry of Agriculture, Fisheries and Food ... ... Sodium Fluoracetate as Rodenticide. Precautionary Measures 247
Menon ... ... Tropical Hazards associated with Use of Pentachlorophenol 248
Brzozowski, Berbeć, Rodziewicz & Wójcik ... ... Hygiene of Work and State of Health of Workers destroying Colorado Beetle with Dichlorethane 248
Bell & Jones ... ... Fumigation with Dichlorethyl Ether and Chlordane ... 248
Ortelee ... ... Study of Men with prolonged Intensive Occupational Exposure to DDT 249
Vargas, Garza De Los Santos & Colorado Iris ... ... Toxicity of Dieldrin 249
Culver, Kinosian, Thielen & Graul ... ... Exposure to Parathion in Greenhouse 249
Arch. Indust. Health ... ... Effect of Parathion on Human Red Blood Cell and Plasma Cholinesterase 249
Swann, Woodson & Ballard ... Acute Toxicity of Intramuscular Parathion in Rats 249
O'Brien & Davison ... ... Antagonists to Schradan Poisoning in Mice 250
Bordás, Kanyó, Nagy & Weber ... Exposure to Wofatox and Malathion through Spraying ... 250
Bruaux ... ... Toxicity of Diazinon and Malathion in Workmen handling them 250
Buckley ... ... Lichenoid Eruptions after Contact Dermatitis 251
Ramos e Silva & Cozzolino ... Occupational Dermatosis—Subungual Tylosis 251
Zuppinger ... ... Danger from Ionizing Radiation 251
Cogan, Fricker, Lubin, Donaldson & Hardy ... ... Cataracts and Ultra-High-Frequency Radiation 252
Wilhelm ... ... Radiation Exposure in Childhood 252
Stannard ... ... Dosage and Biological Effects of Internal Radio-activity ... 252
Laughlin ... ... Dosage and Biological Effects of External Radiation Sources 253
Tebrock, Young & Lopez ... ... Diagnosis and Treatment of Radiation Injury 253
Garavaglia, Ghislandi & Polvani Medical Service in Centre of Applied Nuclear Research ... 253
Parmeggiani ... ... Regulations for Work involving Ionizing Radiation ... 254

ATMOSPHERIC POLLUTION

Louisville & Jefferson County ... Air over Louisville; Special Air Pollution Study, 1956–7 ... 254
Goossens & Lafontaine ... ... Chemical Air Pollution and Fumes from Internal Combustion Engines and Heating Installations 254

PHYSIOLOGY AS APPLIED TO HYGIENE

Loewenthal & Freed ... ... Disturbances of Sweat Delivery in Deep-Level Gold Mines 255
Wyndham & Cooke ... ... Chamber of Mines Acclimatization Procedures 255

HYGIENE OF BUILDINGS

Housing and Building Construction

Don ... ... Towards a Housing Policy 256

HYGIENE OF BUILDINGS—*cont.*

PAGE

Heat Regulation, Ventilation and Lighting

Stoecker ... ... Recognition and Control of Radiant Heat 256

SANITATION

Water and Swimming Baths

Schinzel ... ... Limnological Investigations in Study of Waters from Limestone Formations 256
Middleton & Rosen ... ... Organic Contaminants affecting Quality of Water 257
Selenka ... ... Causes of Failure of TTC-Medium in Bacteriological Examination of Water 257
Zieminska ... ... Bacteria of *E. coli* group and Bacteriophages of some Pathogenic Intestinal Bacteria in River Water 258
Metzler, Culp, Stoltenberg, Woodward, Walton, Chang, Clarke, Palmer & Middleton ... Emergency Use of Reclaimed Water for Potable Supply at Chanute, Kan 258

Sewage, Trade Waste and Refuse Disposal

Mack, Mallmann, Bloom & Krueger ... ... Isolation of Enteric Viruses and Salmonellae from Sewage. I. Comparison of Coliform and Enterococci Incidence to Isolation of Viruses 259
Oldham ... ... Effects of Non-Ionic Synthetic on Biological Percolating Filters 259

Rodent Infestation

Ministry of Agriculture, Fisheries & Food ... ... Biological Methods for Evaluation of Rodenticides 260

PORT, SHIP AND AVIATION HYGIENE

Ejsmont ... ... Illnesses of Deepsea Fishermen in 1955 260

INFESTATION AND DISINFESTATION

George ... ... Norwegian Scabies 260

FOOD AND NUTRITION

Foodstuffs

Nickerson, Proctor & Goldblith Freezing and Irradiation 261
Kempe, Graikoski & Bonventre ... Combined Irradiation-Heat Processing of Canned Foods. II. Raw Ground Beef inoculated with Spores of *Cl. botulinum* 261
Miller ... ... Ordinance and Code for Food Vending Machines 261
Hopper & Adams ... ... Copper Poisoning from Vending Machines 262
Cecil ... ... Milk and the Housewife 262
Franklin; Williams; Chapman; Clegg ... ... Sporicidal Efficiency of Ultra-High Temperature Milk Sterilizing Plant. II. Experiments with Suspensions of Spores in Milk. III. Heat Resistance of Spores of *B. subtilis* in Water and Milk 262
Thomas, Hobson & Elson ... ... *Coli-aerogenes* Bacteria from Dairy Equipment and Raw Milk 263
Edgell, Lomax, Adams & Aitken Bacteriological Studies of Immersion Cleaning of Milking Equipment on Farms 263

Food Poisoning

Saha & Ganguli ... ... Staphylococcal Food Poisoning from Consumption of *Dahi* ... 263
Clarenburg, Kampelmacher, Van Keulen & De Nooij ... ... Meat Poisoning caused by *Salm. typhimurium* 263
Halstead & Schall ... ... Poisonous Fishes of Line Islands 264
Masi, Armijo & Timothee ... ... Great Barracuda Food Poisoning in Puerto Rico 264

BACTERIOLOGY AND IMMUNITY

General

Zent. F. Bakt. ... ... Third Symposium on Phage Typing 264
Carter & Leise ... ... Specific Staining of Bacteria with Single Fluorescent Antiglobulin 265
Klein, Metcalf & Lincoln ... ... Laboratory Apparatus for Collection of Flocculated Vegetative Bacterial Cells 265
Mansi ... ... Slide Gel Diffusion Precipitin Test 266
Pijper ... ... Bacterial Flagella and Motility 266

BACTERIOLOGY AND IMMUNITY—*cont.*

General—*cont.*

PAGE
Pease ... Electron Microscopy of Processes of Regeneration of Bacillary forms from Filterable and Non-Filterable Stage in L-Form of Bacteria ... 266
Flood ... Injection Unit used instead of Hypodermic Syringe ... 266
Thomas, Liddell & Carmichael ... Cleansing of Hospital Blankets ... 266

Bacteriostatic and Bactericidal Substances; Disinfection

Morenz ... Paper Strip Method for Routine Measurement of Resistance 267
Dennig ... Side-Effects of Antibiotic Treatment ... 267
Martin ... Anaphylactoid Reaction to Oral Penicillin ... 267
Miyamura ... Bactericidal Action of Chloramphenicol on *E. coli* ... 267
Batterman & Mouratoff ... Tetracycline Phosphate Complex Administered Intramuscularly in Geriatric Patients ... 267
Linz & Lecocq ... Bactericidal Effect of Erythromycin *in vitro* ... 268
English & Fink ... Triacetyloleandomycin in Epidemic Staphylococcal Infections 268
English & McBride ... Triacetyloleandomycin: Biological Studies ... 268
Koch & Lepley ... Coagulase-Positive "Hospital" Staphylococci exhibiting Cross Resistance between Erythromycin and Oleandomycin 268
Maral & Ciaccio ... Action of Spiramycin on Psittacosis Virus in Mice and in Embryonated Eggs ... 269
Miyakawa; Anzai; Shimizu; Hinuma; Sato; Chiba; Ikeda; Mizuno ... Antiviral Antibiotics from *Streptomyces*. VIII. Various Antibiotics as Inhibitors of Influenza Virus in Tissue Culture. IX. Inhibitory Effect of several Antibiotics on Growth of Influenza Virus in Embryonated Eggs and in Mice ... 269
Noufflard & Berteaux ... Antituberculous Action of B-663 ... 269
Levy & Haas ... Alteration of Course of Lymphocytic Choriomeningitis in Mice by certain Antimetabolites ... 269
Colobert ... Lysis of Pathogenic Salmonellae induced by Lysozyme after Partial Delipidation of External Wall ... 269
Worseck ... Bactericidal Properties of Belgian UV Lamp ... 270
Amano, Goebel & Smidth ... Colicine K. III. Immunological Properties of Substance having Colicine K Activity ... 270

Individual Bacteria

Grant, Gracey & Clark ... Salmonella, Shigella and Typhoid Phage Types in Jamaica 270
Spanò ... New Vi Phage Type of *Salm. typhi* ... 270
Lipp & Ihm ... Assessment of Products designed to give Active or Passive Immunity to Typhoid Infection by Quantitative Determination of Bacteriaemia in Mouse after Infection ... 270
Adler ... Endemic Infection of Personnel in Food Industry with Salmonella Blockley ... 271
Nava & Bo ... Chemical Composition of Salm. Aberdeen, Luciana, Veneziana, Gaminara and Memphis ... 271
Formal, Lowenthal & Galindo ... Mucinases from *Sh. flexneri* ... 271
Junghans ... Phage Typing of *Sh. sonnei* isolated in Berlin, 1955–7 ... 271
Iwamura ... *Coli-aerogenes* Group. Effects of Environmental Factors on *E. coli*. I. Alteration of Formic Hydrogenlyase Activity of *E. coli* in Case of Environmental Change from Faeces to Water ... 272
Oehring & Schabinski ... Increased Toxicity of Diphtheria Organisms in Animal Passage ... 272
Senay, Enzinger & Hines ... Production of Dystrophic Lesions in Skeletal Muscles of Dutch Rabbit by Diphtheria Toxin ... 273
Anderson & Cowles ... Effect of Antiphage Serum on Virulence of *C. diphtheriae* ... 273
Kranzdorf & Banc ... Purification of Toxoids. I. Purification of Diphtheria Toxoid by Metaphosphoric Acid ... 273
Viallier & Cayré ... Difficulties in Identification of Mycobacteria ... 273
Hirsch & Cattaneo ... Mycobacteria: Chemical Structure and Virulence. III. Reduction of Triphenyltetrazolium Chloride by Various Species of Mycobacteria ... 274
Cook ... Isolation of Tubercle Bacilli from Homogenized Sputum before and after Concentration ... 274
Little & Devine ... Effect of Centrifugation on Cultivation of Tubercle Bacilli from Sputum ... 274
Crone ... Culture of Tubercle Bacilli from Treated and Untreated Patients ... 275
Viallier ... Treatment of Pathological Material with Quaternary Ammonium Compounds for Isolation of Tubercle Bacilli ... 275
Viallier, Augagneur & Biot ... Isolation of Tubercle Bacilli from Pathological Material after Treatment with Quaternary Ammonium Salts: Effect of Proteolytic Ferments ... 275

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

PAGE
Simpson & Reed ... ... Slide Culture of Tubercle Bacilli. IV. Further Diagnostic Trials 275
Paterson, Wright & Patterson ... Trace Elements in Preparation of Tuberculin 276
Négre, Bretey & Roy ... ... Infra-Allergy demonstrated by Total Bacterial Cells and Anti-Tuberculous Resistance due to BCG 276
Takahashi & Yamamoto ... ... Bacillary Components determining Allergy and Immunity in Tuberculosis 276
Takahashi & Ono ... ... Haemagglutination Reactions by the Phosphatides of *Myco. tuberculosis* 277
Takahashi & Hukae ... ... Haemagglutination Reaction with Phosphatide of Tubercle Bacilli 277
Seibert ... ... Interplay of Immune Substance with Tuberculopolysaccharide and its Antibody in Tuberculosis 277
Franc, Hais & Horšovský ... ... Antituberculous Factors of Milk 278
Gancevici, Dâmboviceanu & Rădulesco ... ... Inhibitory Factor of Middlebrook-Dubos Reaction, Isolated from Normal Bovine Serum 278
Arima, Tsukiori & Takahashi ... Morphological, Cytochemical and Biological Changes in Tubercle Bacilli exposed to Chemotherapeutic Substances in Current Use 278
Kraan ... ... Resistance of Tubercle Bacilli to Streptomycin, PAS and INH 279
Willett ... ... Inhibition of Diaminopimelic Acid Decarboxylase Activity in *Myco. tuberculosis* by Isonicotinic Acid Hydrazide ... 279
Nasta, Paunesco & Georgesco ... Mechanism of Pathogenicity Attenuation of Isoniazid-Resistant Tubercle Bacillus Variants 279
Suter, Ullman & Hoffman ... Sensitivity of Mice to Endotoxin after Vaccination with BCG 279
Canetti, Bretey, Saenz & Grossett Effect of Early Isoniazid Therapy on Immunity induced in Guineapigs by Small Dose of Standard BCG 280
Steenken, Smith & Montalbine ... *In vitro* and *in vivo* Effect of Antimicrobial Agents on Atypical Mycobacteria 280
Graber, Latta, Fairchild & Vogel Production of Opalescence by Staphylococci in Egg Yolk Medium as Index to Bacteriophage Typability 280
Hurst ... ... Penicillin Resistance of Staphylococci in Children 281
Roantree, Rantz & Haines ... Medium containing Nucleic Acid, Maltose and Antibiotics for Isolation of Group A Haemolytic Streptococci 281
Gooder & Maxted ... ... Protoplasts of Group-A Beta-Haemolytic Streptococci ... 281
Krasner & Young ... ... Hyaluronidase and Hyaluronic Acid Capsule in Survival and Dissemination of Group A Streptococci in Hamster Cheek Pouch 281
Jelínkova & Jelínek ... ... Selectivity of Bacitracin in relation to Serological Groups of Streptococci 281
Parnas & Kozakowna ... ... Variability of *Brucella* 282
Renoux ... ... Comparison of Various Solid Media for Cultivation of *Brucella* 282
Parnas & Chodkowski ... ... Immunology of Brucellosis and Choice of Strains for Living Vaccines 282
Standfast ... ... Factors influencing Virulence for Mice of *B. pertussis* by Intracerebral Route 282
Standfast ... ... Comparison between Field Trials and Mouse Protection Tests against Intranasal and Intracerebral Challenges with *B. pertussis* 282
Dolby & Standfast ... ... Comparison of Passive Protection Tests against Intranasal and Intracerebral Challenges with *B. pertussis* 283
Vainer, Faur, Tigoiu & Ionescu ... Preparation of *H. pertussis* Vaccine on Semi-Synthetic Solid Medium 283
Faur, Vainer, Tigoiu & Ionescu Immunizing Properties of *H. pertussis* Vaccine 283
Pozsgi, Faur & Ţigoiu ... ... *H. pertussis* Constituent of Diphtheria-Tetanus-*H. pertussis* Triple Vaccine 283
Lin ... ... Pertussis Vaccine. II. Potency of Plain Pertussis Vaccine and Pertussis Component in DTP Vaccine 283
Andersen & Bentzon ... ... Comparison between Pertussis Vaccine Potency Assays in Mice challenged by Intracerebral Route and Mice challenged by Intranasal Route 284
Watson; Scherp; Marinetti ... Specific Hapten of Group C. Meningococcus. I. Preparation and Immunological Behaviour. II. Chemical Nature 284
Thompson & Knudsen ... ... Reliable Fermentation Medium for *N. gonorrhoeae* 284
Ranque, Senez & Depieds ... ... Trials on Survival of *Trep. pallidum* 284
Lilly ... ... Culture Methods for Clostridia 285
Seki, Takaki, Okamura & Sakaguchi ... ... Tetanal Toxin obtained by Mechanical Disintegration of Bacterial Cell 285

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

PAGE
Dolman ... Recent Observations on Type E Botulism ... 285
Strange & Thorne ... Purification Studies on Protective Antigen of *B. anthracis* produced *in vitro* ... 286

Fungi

Larsh, Scholes, Hinton & Silberg ... Minimal Infectious Inoculum of *Histoplasma capsulatum* for Mouse and Chick Embryo ... 286
Di Menna ... *C. albicans* from Grass Leaves ... 286
Solotorovsky, Quabeck & Winsten ... Antifungal Activity of Candidin, Nystatin, Eulicin and Stilbamidine against Experimental Infections in Mouse ... 286
Gadebusch ... Active Immunization against *Cryptococcus neoformans* ... 286
Gadebusch ... Passive Immunization against *Cryptococcus neoformans* ... 287

Bacteriophages

Valeriu ... Mechanism of Survival of Bacteriophage in External Medium ... 287
Kantoch ... Serological Properties of Anti-Vi Phages of Typhoid Bacilli 287
Mayr-Harting ... Development of Phage Plaques and Mechanism of Phage Action in Solid Media ... 288
Tomizawa ... Sensitivity of Phage Precursor Nucleic Acid, synthesized in Presence of Chloramphenicol, to Ultraviolet Irradiation 288
Bertani & Six ... Inheritance of Prophage P2 in Bacterial Crosses ... 288
Raettig & Drescher ... Adsorption in Different Types of Virus. III. Reaction of T3 Phages with Specific Antibodies ... 288
Epstein ... Multiplicity Reactivation in Bacteriophage T4. I. Genetic and Functional Analysis of T4D.-K12 Complexes ... 288

Viruses

Smith ... Virus-Host Cell Interactions ... 289
Marcus & Puck ... Host-Cell Interaction of Animal Viruses. I. Titration of Cell-Killing by Viruses ... 289
Ferris & Plowright ... Methods for Production of Monolayers of Testis Cells from Domestic Animals, and for Serial Examination of Monolayer Cultures ... 289
Heymann, Gulick, De Boer, De Stevens & Mayer ... Inhibition of Ribonuclease by Acidic Polymers and their Use as possible Antiviral Agents ... 289
Kubelka, Slavík & Soušek ... Infective Hepatitis ... 290
Holt & Epstein ... Cytochemical and Electron Microscopical Observations on Substances associated with Fluorocarbon Purified Vaccinia Virus ... 290
Zeitlenok, Pille & Konosh ... Effect of Dyes on Virus Haemagglutination ... 290
Bauer ... Chemotherapeutic Activity of Compounds of Copper, Rhodium and certain other Metals in Mice infected with Neurovaccinia and Ectromelia Viruses ... 290
Bedson & Gostling ... Mode of Multiplication of Herpes Virus ... 291
Grossgebauer ... Dark Field and Phase Contrast Microscopic Observations in connexion with Serological Investigations on Myxoviruses 291
Versteeg, Mouton & Verlinde ... Asian Influenza in Horses? ... 291
Chesbro & Hadrick ... Comparison of Tendency to cling to Glass and Haemagglutination produced in Erythrocyte Suspensions by Ferric Chloride and by Influenza Virus ... 291
Lennette, Culver & Stevens ... Type-Specific Reactivity of Influenza Complement-Fixation Test. Inability of Allantoic Fluid Antigens to Distinguish between Asian and other Recent Type A Influenza Virus Infections ... 291
Isaacs, Burke & Fadeeva ... Effect of Interferon on Growth of Viruses on Chick Chorion 291
Burke & Isaacs ... Some Factors affecting Production of Interferon ... 292
Isaacs & Burke ... Mode of Action of Interferon ... 292
Stakhanova ... Non-Specific Influenza Virus Inhibitors in Sera of Pyrexial Patients ... 292
Borecký ... Factor destroying Virus Receptors in Pneumococcal Cultures. I. Isolations and Properties of Factor ... 292
Amos & Vollmayer ... Inhibition of Influenza Virus Synthesis by 2-Thiouracil ... 292
Carson ... Comparative Susceptibility of Various Tissue Culture Cell Lines to Adenovirus Types 1-7 ... 292
Rowe, Hartley, Roizman & Levy ... Factor formed in Adenovirus Infection of Tissue Cultures causing Detachment of Cells from Glass ... 293
Fukumi, Nishikawa, Mizutani, Nakamura, Watanabe, Kitayama & Kinoshita ... Cytopathogenic Agent isolated from a Case of Upper Respiratory Illness resembling Adenovirus Infection ... 293
Marston ... Cytopathogenic Effects of Haemadsorption Virus Type I ... 293

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

		PAGE
Vogel	Enhanced Susceptibility of Proliferating Endothelium to Salivary Gland Virus under naturally occurring and Experimental Conditions	293
Darnell & Eagle	Glucose and Glutamine in Poliovirus Production by HeLa Cells	293
Basset & Maurin	Action of High Pressures on Viruses. Influence of Temperature on Inactivating Pressure of Poliovirus in Tissue Culture	294
Pohjanpelto	Stabilization of Poliovirus by Cystine	294
Taylor & Graham	Purification of Poliovirus labelled with Radiophosphorus	294
Ledinko	Production of Noninfectious Complement-Fixing Poliovirus Particles in HeLa Cells treated with Proflavine	294
Kelly & Sanderson	Effect of Chlorine in Water on Enteric Viruses	295
Böttiger, Lycke, Melén & Wrange	Inactivation of Poliomyelitis Virus by Formaldehyde. Incubation Time in Tissue Culture of Formalin treated Virus.	295
Darnell, Lockhart & Sawyer	Effect of Neutral Red on Plaque Formation in 2 Virus-Cell systems	295
Parks, Ganaway & Price	Immunologic Overlap among Certain Arthropod-Borne Viruses. III. 3 Strains of W. Nile Virus studied in Cancer Patients	295
Winn, Kaplan, Palmer & Solomon	Sensitivity of Swine and Cattle to Artificial Infection with Western Equine Encephalitis Virus	296
Keeble, Christofinis & Wood	Natural Virus-B Infection in Rhesus Monkeys	296

Immunity

Markov & Obretenova	Contrasted Immunizing Effect of Inoculation of Dead and Living Bacteria	296
Howard, Rowley & Wardlaw	Mechanism of Stimulation of Non-Specific Immunity by Bacterial Lipopolysaccharides	296
Green	Effects of Nitrogen Mustard on Immunological Response of Rabbit. II. Breakdown of Bacterial Antigen in Splenic Tissue	297
Smith & Bridges	Immunological Unresponsiveness in Rabbits produced by Neonatal Injection of Defined Antigens	297
Landy, Skarnes, Rosen, Trapani & Shear	Inactivation of Biologically Active Polysaccharides by Fresh Human Serum	297
Skarnes; Rosen; Shear; Landy	Inactivation of Endotoxin by Humoral Component. II. Interaction of Endotoxin with Serum and Plasma. III. Role of Divalent Cation and Dialyzable Component	297
Gustafsson & Laurell	Gamma Globulins in Germ-Free Rats	298
Borsos & Kent	Serum Gamma Globulin and *Trypanosoma cruzi* Agglutinin in Embryonic, "Normal" and Germ-Free Chickens	298
Van Marwyck	Incomplete Antibodies in Infectious Diseases	298
Delaunay, Pelletier & Hénon	Existence of Non Specific Bacterial Opsonins	299
Riggs, Seiwald, Burckhalter, Downes & Metcalf	Isothiocyanate Compounds of Fluorescent Labelling Agents for Immune Serum	299
Ślopek, Skurski, Michalska & Dabrowski	Phagocytosis and Antigenic Structure of Bacteria	299
Rowley	Bactericidal Activity of Macrophages *in vitro* against *E. coli*	299
Waksman & Matoltsy	Effect of Tuberculin on Peritoneal Exudate Cells of Sensitized Guineapigs in Surviving Cell Culture	299
Waksman & Matoltsy	Local Passive Transfer of Tuberculin Sensitivity with Peritoneal Exudate Cells in Guineapig	300

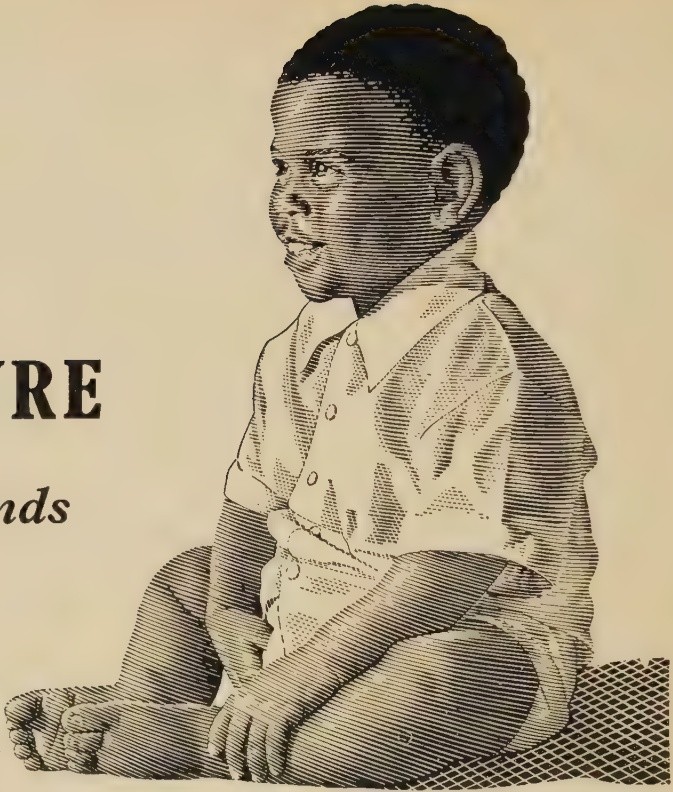
MISCELLANEOUS

Gerstner	Acute Effects of Penetrating Nuclear Radiation	301
Ministry of Health. National Health Service	Treatment of Anthrax, Botulism, Snake Bite and Rabies	301
Asher	Why are Medical Journals so Dull?	301

BOOK REVIEWS

World Health Organization	World Directory of Medical Schools	302
Borris	Guides to Hygienic Practice	303
United Kingdom	History of 2nd World War; the RAF Medical Services	303

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.



HIS FUTURE

is in your hands

Will this child ever reach his 15th birthday, or will he be a victim of malaria? His future is in your hands because malaria *can* be controlled.

Five years' experience has shown 'Daraprim' to be a highly effective agent in the control of the disease. Moreover, when administered to an entire community, it is capable of breaking the malarial cycle since it interrupts the development of the parasite in the mosquito.

'Daraprim' is highly potent but tasteless and has proved an excellent suppressant in a weekly adult dosage of only 25 mgm. It is supplied in the form of 25 mgm. tablets in strip-packs of 6 and 30 for individual use, and in tins of 1,000 for larger users.

In the French Union, Tunisia and Morocco pyrimethamine is available under the trade name 'Malocide'.

'DARAPRIM'
BRAND
PYRIMETHAMINE

BURROUGHS WELLCOME & CO (THE WELLCOME FOUNDATION LTD.) **LONDON**

Associated Houses:
AUCKLAND BOMBAY BUENOS AIRES CAIRO DUBLIN JOHANNESBURG KARACHI MONTREAL NAIROBI NEW YORK RIO DE JANEIRO ROME SYDNEY

BUREAU OF HYGIENE AND TROPICAL DISEASES

Pneumoconiosis Abstracts Volume III

(covering the years 1951-55)

This volume, which will appear shortly, is a sequel to the 2 preceding volumes published in 1953 and 1954, containing abstracts which first appeared in the *Bulletin of Hygiene* in the years 1926-38 and 1939-50 respectively. The set of 3 volumes thus contains a comprehensive collection of abstracts of the important papers published in this field during a period of 30 years.

In addition to abstracts on the various forms of pneumoconiosis, abstracts of articles are included which deal with standards of air dustiness; with concentrations of dust from various processes; with technical methods of measurement of dust; and with the study of the physical properties of dusts and of their chemical and mineralogical characters.

Pneumoconiosis Abstracts

Vol. I	1926-1938	319 pp.	63s.
Vol. II	1939-1950	48 pp.	80s.
Vol. III	1951-1955	355 pp.	65s.

Orders should be sent to

PITMAN MEDICAL PUBLISHING CO., LTD.
39, Parker Street, London W.C.2.

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with :—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases
  - (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port, Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with :—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- **Tropical Bacterial Diseases**
  - **(Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)**
- **Helminthic Diseases**
- **Tropical Deficiency Diseases**
- **Other conditions related to warm climates**
- **Bacteriological, Entomological, Protozoological papers related to these diseases**

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE

MINISTRY OF HEALTH ... ... Report for 1957. 1. National Health Service. 2. Welfare, Food and Drugs, Civil Defence 305

ELLER, HATCHER & BUELL ... ... Health and Welfare in Community Planning for Problem of Indigent Disability 306

WELLIN ... ... Implications of Local Culture for Public Health 306

FLECK & IANNI ... ... Epidemiology and Anthropology: Affinities in Theory and Method 306

MATERNAL AND CHILD HEALTH

SYLVESTER ... ... Changes in Open Air School over 30 Years 307

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

ROTH ... ... Problems of Mental Health in Old Age 307

FARQUHAR ... ... Care of the Aged 307

VITAL STATISTICS AND EPIDEMIOLOGY

GABRIEL & RONEN ... ... Estimates of Mortality from Infant Mortality Rates ... 308

ABHAYARATNE ... ... Infant Mortality in Ceylon 308

TAYLOR ... ... Monte Carlo Methods applied to Epidemic of Acute Respiratory Disease 308

BARR ... ... Hospital Admissions and Social Environment 309

CONGO BELGE. UNION MINIÈRE DU HAUT-KATANGA ... ... Annual Report of the Medical Department, 1957 309

COMBINED PRESSURE VACUUM CHAMBER
0
5
10
10
20
15
30
20
40
25
50
30

HIGH PRESSURE HIGH VACUUM

Hi Speed

STERILIZING

Manloves

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE: 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 5931-2

"VISIJAR" respectfully request you to add the following items to their 1956 price list.

I.C.I. TENSOL CEMENT No. 7

Each pack contains 16 fl. ozs. of monomer and sufficient catalyst to make a 1–16 solution which thoroughly mixed and evacuated will polymerise at room temperature. Ideal for dough jointing and solid block embedding.

MUSEUM BOX MAKING

We now supply "PERSPEX" ready machined for fabrication at a reasonable charge of 1s. 6d. per square foot extra to our published price of each thickness. Lids and bases should be slightly greater in area to allow for thickness tolerance of side panels.

THE "VISIJAR" MUSEUM BOX ready for use is still made to your requirements in ever increasing numbers in both 5 panel and "U" form.

Price list on application

THE VISIJAR LABORATORY SUPPLY CO. LTD.
149, LONDON ROAD, CROYDON, SURREY
Croydon 8228/9

Silence is Golden!

TRUVOX

FLOOR POLISHER/SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:

TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

COMMUNICABLE DISEASES

Infective Diseases

PAGE
Fenner ... ... Seed and Soil: Host Susceptibility in Infectious Diseases ... 309
Provvidenza ... ... Use of Sulphamethoxypyridazine in Treatment 310
Sukhorukova ... ... Danger of Infection from Scarlet Fever Convalescents ... 310
Kodama, Miyamoto, Kotake & Ochiai ... ... Epidemic Nephritis in Japan 311
Gillespie, Simpson & Tozer ... Staphylococcal Infection in Maternity Hospital 311
Timbury, Wilson, Hutchison & Govan ... ... Staphylococcus Type-80 Epidemic in Maternity Hospital ... 311
Goslings & Büchli ... ... Nasal Carrier Rate of Antibiotic-Resistant Staphylococci. Influence of Hospitalization on Carrier Rate in Patients and their Household Contacts 311
Köhler ... ... Anti-Streptolysin Titre of Normal Persons in N. Germany ... 312
Johanovský ... ... Significance of Antileucocidin and Antitoxin in Immunity against Staphylococcal Infection 312
De Franco ... ... Erythromycin in Control and Prevention of Endemic Staphylococcal Infection in Hospital Nursery 312
Kasparova ... ... Epidemiology of Measles and Whooping Cough 313
Jackson & Fisch ... ... Deafness after Maternal Rubella 313
Schreus ... ... Epidemic of Infectious Erythema in W. Germany 313
Zilişteanu, Ilian, Manescu & Ionescu ... ... Whooping-Cough Epidemic in Rural Area 313
Ivan & Ababei ... ... Whooping-Cough in Bucharest, 1952–6 314
Berg ... ... Neurological Complications of Pertussis Immunization ... 314
Martin Du Pan ... ... Vaccination of Newborn Infant against Pertussis 314
Thompson & Cantrell ... ... Chickenpox Pneumonia treated with Prednisolone 314
Proc. Roy. Soc. Med. ... ... Symposium on Asian Influenza Epidemic, 1957 314
Fraser, Hatch & Hughes ... ... Influenza Outbreak in Portsmouth Naval Command 1957–8 315
Hers, Masurel & Mulder ... Bacteriology and Histopathology of Respiratory Tract and Lungs in Fatal Asian Influenza 315
Gundelfinger, Stille & Bell ... Effectiveness of Influenza Vaccines during an Epidemic of Asian Influenza 315
Sulman ... ... Chloramphenicol and Control of Common Cold 315
Wheeler, Plotkin, Fromme & Smith ... ... Acute Upper Respiratory Disease: Response to Treatment with Penicillin V 316
Navrátilová ... ... Treatment of Lung Abscesses by Endobronchial Administration of Antibiotics 316
Schafer & Mosley ... ... Viral Hepatitis in Penal Institution 316
Lippi & Sebastiani ... ... Changes in Serum Transaminase Contents in Human Viral Hepatitis 317
Lippi & Sebastiani ... ... Transaminase Serum Levels and Liver Function Tests in Diagnosis of Virus Hepatitis and Other Acute Liver Diseases 317
André & André-Gadras ... ... 16 Cases of Poliomyelitis in Bush Village of Gabon 317
Seal ... ... Poliomyelitis in Andamans in 1957 317
Hatch, Hughes & Pilfold ... Excretion of Type 1 Poliovirus from Cases and Contacts ... 317
Brown & Carroll ... ... Antibody Response of Pregnant Women to Poliomyelitis Vaccine and Passive Transfer to Infants 318
Mongan ... ... Neurological Symptoms possibly related to Poliomyelitis Immunization 318
Gear & Measroch ... ... Meningo-Encephalitis due to Coxsackie A-Like Echo 9 Virus 318
Kibrick & Benirschke ... ... Severe Generalized Disease in Newborn Period, due to Infection with Coxsackie Virus, Group B 319
Stones ... ... Isolation of ECHO Virus Type 9 in Outbreak of Meningo-Encephalitis 319
Edgren, Palladino & Arnold ... Japanese B and Mumps Encephalitis on Guam 319
Pieper & Kurland ... ... Follow-up of Patients affected in 1947–8 Epidemic of Japanese B and Mumps Encephalitis on Guam 319
Hayes & Doane ... ... Primary Record of *Culiseta melanura* Biting Man 319
Brand ... ... Outbreak of Typhoid Fever in St. Lucia, 1957 319
O'Connor ... ... Chloramphenicol Therapy for Typhoid Carriers 320
Sommerville ... ... Enteroviruses and Diarrhoea in Young Persons 320
Armstrong ... ... Acute Gastroenteritis 321

Tuberculosis

Laugwitz & Mielsch ... ... Protection and Insurance for Workers in Contact with Tuberculous Cattle 321
Sita-Lumsden, Klein & Logan ... Tuberculosis in Grammar School 321

BUREAU OF HYGIENE AND TROPICAL DISEASES

Occupational Hygiene Abstracts

At the request of the Joint Committee of the Institution of Mining Engineers and the Institution of Mining and Metallurgy, the Bureau of Hygiene and Tropical Diseases issues in reprint form the sections of the *Bulletin of Hygiene* which contain abstracts of papers relating to Occupational Hygiene, Atmospheric Pollution, Occupational Psychology, Physiology as Applied to Hygiene, and the Hygiene of Buildings.

As a large part of the *Bulletin of Hygiene* is purely medical in character the Joint Committee, who are mainly interested in the problems of dust, heat and humidity in mines, asked the Bureau to issue separate reprints of these particular sections, so that they may be available to the large body of non-medical men who are directly concerned with the well-being and efficiency of mine workers and of workers in other industries in which there are health problems of a similar nature.

The price of the separate abstracts is 3s. per issue, or 30s. for a complete set of the 12 monthly issues each year, including index. The original pagination of the *Bulletin of Hygiene* is retained in the abstracts, together with the appropriate section of the table of contents. The first issue, entitled *Bulletin of Hygiene Reprints*, began with the *Bulletin of Hygiene* for January, 1951 (Vol. 26, No. 1). From January, 1958, the title has been changed to *Occupational Hygiene Abstracts*.

Applications for the *Occupational Hygiene Abstracts* should be addressed to the Bureau of Hygiene and Tropical Diseases, Keppel Street, London, W.C.1, together with a remittance of 30s.

Tuberculosis—*cont.*

PAGE
Wood, Furcolow & Willis ... Evaluation of Tuberculosis Case Finding by Tuberculin Testing and Observation of Histoplasmin Sensitivity among Schoolchildren ... 322
Kunofsky & Katz ... Stability of Tuberculin Reaction ... 322
Marks, Tokuyama & Peterson ... Tuberculin Testing in Honolulu Schools ... 323
Sindo, Utahashi, Haga, Hiyama & Itoi ... Haemolytic Test in Tuberculosis with Serum Samples of Tuberculous Patients and Healthy Persons in Japan; Relationship between Results of Haemolytic Test and Tuberculin Skin Test on Healthy Persons ... 324
Stradling & Dixon ... Disadvantages of Chest Radiography Service for General Practitioners ... 324
Kalthofen, Van Vliet & Van Der Zee ... 2nd Chest X-ray Survey of Population of Amsterdam ... 324
Kimsey ... Bacteriological Diagnosis of Childhood Tuberculosis with Bone Marrow and Peripheral Blood Aspirates ... 325
Breuer, Abeles, Chaves & Robins ... Ambulatory Tuberculous Patients with Pulmonary Cavities and Non-Infectious Sputum ... 325
American Trudeau Soc. ... Antimicrobial Therapy of Tuberculosis ... 325
Berte, Dewlett & Schmidt ... Chemotherapy in Pulmonary Tuberculosis. I. High Doses of Isoniazid with PAS and Pyridoxine. II. Daily Streptomycin plus High Doses of Isoniazid with PAS and Pyridoxine ... 326
Bridge & Carr ... Clinical Use of Single Daily Dose of Para-Aminosalicylic Acid in association with Isoniazid ... 326
Karslon & Carr ... Effect of Single and Double Daily Doses of Para-Aminosalicylic Acid in Tuberculosis of Guineapigs ... 326
Shields, Lees & Fox ... Pneumonectomy in Treatment of Pulmonary Tuberculosis 327
Zinneman & Tucker ... 7–11-Year Follow-Up Study of Results of Primary Thoracoplasty for Pulmonary Tuberculosis ... 327
Schaefer, Birnbaum & Douglas ... Full-Term Delivery after Major Thoracic Surgery for Pulmonary Tuberculosis ... 327
Gordon ... Extrapleural Pneumolysis and Pulmonary Tuberculosis ... 327
Lu, Chang, Lin, Ho & Chu ... Prognosis of Tuberculous Pleurisy with Effusion ... 328
Chao & Fang ... Tuberculoma of Brain ... 328
Gernez-Rieux, Gervois & Lebeurre Long-term Results of BCG Vaccination by Scarification ... 328
Lewis, Dunbar, McAlister & Cacciatore ... Chronic Pulmonary Disease due to Atypical Acid-Fast Bacilli ... 329
Schmolle ... Flannelgraph Cut-Outs to illustrate Causes, Treatment and Prevention of Tuberculosis ... 329

Venereal Diseases

Willcox ... Venereal Syphilis and other Venereal Infections in Non-Venereal Treponematoses Areas in Africa ... 329
Kline & Suessenguth ... Improved Emulsion of Cardiolipin, Synthetic Lecithin Antigen for the Kline Test ... 329
Vinikoff ... Application of *Trep. pallidum* Immobilization Test ... 330
Fegeler ... Significance of Disappearance of Treponemata in Specific Diagnostic Tests for Syphilis ... 330
Döllken ... Penicillin Treatment of Syphilis during Pregnancy ... 330
Willcox ... Aetiology of Non-Gonococcal Urethritis ... 330
Verheye & Kanda ... Trichomonas Urethritis ... 331
Wang & Hsia ... Treatment of *Trichomonas vaginalis* Infections with Plant Germicides and Medicinal Herbs ... 331

Other Communicable Diseases

Proc. Roy. Soc. Med. ... Discussion on Tetanus ... 331
Charlas, Hajjaoui & Xardel ... 25 Cases of Umbilical Tetanus in Children in Morocco, 1957–8 ... 332
Kourany, Cleve & Smith ... Treatment of Tetanus ... 332
Podvarko ... Treatment of Tetanus ... 332
Ikic ... Amount of AU in Subjects vaccinated with PTAP Tetanus Prophylactic ... 332

Zoonoses

Gargani & Guerra ... Human Brucellosis in Italy, 1946–57 ... 333
McKeever, Schubert, Moody, Gorman & Chapman ... Tularaemia in Marsupials, Carnivores, Logomorphs and Large Rodents in S.W. Georgia and N.W. Florida ... 333
Kartman, Murray, Prince, Quan & Holmes ... Public Health Implications of *Microtus* Outbreak in Oregon and California, 1957–8 ... 333

London School of Hygiene and Tropical Medicine

(UNIVERSITY OF LONDON)

Incorporating the Ross Institute

KEPPEL STREET, (GOWER STREET), LONDON, W.C.1

Dean: Sir James Kilpatrick, *K.B.E., C.B.*, M.B., D.P.H.

The London School of Hygiene and Tropical Medicine provides the following courses of instruction:

(1) **Academic Postgraduate Diploma in Public Health:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Fee: £73 10s.

(2) **Academic Postgraduate Diploma in Bacteriology:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Applications must be received not later than 1 March. Fee: £73 10s.

(3) **Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene:** The course commences at the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.T.M. & H. course extending over approximately the first 4½ months. Applicants must elect to study one of the following subjects at the final part of the course:—Clinical Tropical Medicine: Tropical Hygiene. Fee: £73 10s. (£42 for the C.T.M. & H. only).

(4) **Diploma in Tropical Medicine and Hygiene (England):** The course for the Conjoint Board's Diploma is held twice a year: from the beginning of October to mid-February and from the beginning of March to mid-July. Fee: £42.

(5) **Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology:** The course commences about the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.A.P. & E. course extending over approximately the first 4½ months. Fee: £73 10s. (£42 for the C.A.P. & E. course only).

(6) A course in **Statistical Methods applied to Medicine and Epidemiology** is held annually on two days a week from about the beginning of January to about the end of April. Students without a medical qualification can be accepted. Fee: £15 15s.

(7) **Public Health Engineering:** The course commences at the beginning of October and lasts for 9 months (whole-time). It is given in co-operation with Imperial College and is intended primarily for students with a university degree in civil engineering or an equivalent qualification. Applications to Imperial College. Fee: £60 plus £2 entrance fee.

(8) **Academic Postgraduate Diploma in Psychology:** Students who are registered for this Diploma at a College of the University may by arrangement attend lectures covering Part II, Section C (Occupational).

(9) **Diploma in Industrial Health:** The industrial health lectures and practical work arranged by the School for Diploma in Public Health students taking Industrial Health as their special subject are recognized by the Conjoint Board and by the Society of Apothecaries as fulfilling the requirements for entry to the D.I.H. examination.

(10) **Environmental Control:** A ten-weeks' course held twice in each academic year; commencing about the beginning of March and about the beginning of October. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: £27 6s. including registration fee.

(11) **Higher Degrees:** Facilities are provided for candidates studying for the degrees of Ph.D. and M.Sc. in appropriate subjects.

Clinical instruction is given at the Hospital for Tropical Diseases and elsewhere.

Enquiries should be addressed to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, (Gower Street), London, W.C.1. (Telephone: MUSeum 3041 and LANgham 7621).

COMMUNICABLE DISEASES

Zoonoses—*cont.*

		PAGE
Parnas	Skin Reactions in Brucellosis and Tularaemia	334
Constantinesco & Zavate	Immunological Studies on Leptospirosis	334
Combiescu, Sturdza, Sefer & Radu	Research Work on Leptospira in Roumania	334
Cox, Stover & Treick	Haemolytic Antigen from Leptospira	335

DISEASES DUE TO FUNGI

Drouhet	Medical Mycology in France 1946–56	335
Richter & Erbakan	Medical Mycology in Turkey	335
Williams, Marten & Sarkany	Oral Treatment of Ringworm with Griseofulvin	335
Fox & Ainsworth	Mycology of the Mouth	336
Rötter & Staib	Pneumonia due to *C. tropicalis*	336
Giunchi	Candidosis after Antibiotic Therapy	336
Hosty, Ajello, Wallace, Howell & Moore	Outbreak of Histoplasmosis	336
Stapff & Mackinnon	Histoplasmosis treated with Diamidinodiphenilamine	337
Razin, Cohen & Rozansky	Antimycotic Effect of Spermine	337

RHEUMATIC DISEASES

Conybeare	Notified Acute Rheumatism 1950–7	337
Hollister & Engleman	Rheumatic Fever in Military Personnel	337
Scheff, Marienfeld & Hackett	Blood Culture Studies in Rheumatic Fever Patients	338
Goldring, Behrer, Brown & Elliott	Rheumatic Pneumonitis. II. Report on 23 Patients	338

HEART DISEASE

Morris & Crawford	Coronary Heart Disease and Physical Activity of Work: Evidence of Necropsy Survey	338

OCCUPATIONAL HYGIENE

International Congress on Occupational Health	Vol. I. Reports. Vol. II. Summaries. Vol. III. Proceedings	339
Proc. Third Conference Indust. Council for Trop. Health	Industry and Tropical Health, III	340
Maroc Méd.	"La Médecine du Travail"	340
Schreuder	Routine Health Examinations among Industrial Executives	340
Patton	Assessment of Sickness Absence with special reference to Refuse Collectors	341
Yaffe, Jones & Weiss	Industrial Noise and Hearing Loss in Controlled Population	341
National Coal Board	Medical Service. Annual Report 1957	341
	Research on Medical and Allied Problems	342
Burdekin & Dawes	Properties of Airborne Dust Clouds in Mining	342
Hodkinson	Particle-Size Distribution of Microscopic Coal and Rock Dusts	342
Gordieyeff	Glass Microspheres as Inhalation Tracers	342
Grassmann	Dry Filters for Cleaning Air	343
Brauer	Dust Suppression in Graywacke Industry	343
Schweiz. Med. Woch.	Report of Commission of German Institute of Internal Medicine on Standardization of Nomenclature and Symbols of Respiratory Terms	343
Capel & Smart	Spirometry and Effort Tolerance in Diseases of Heart and Lungs	343
Carstens, Brinkmann, Lange, Meisterernst & Schlicht	Physio-pathology of Pneumoconiosis in Mining Industry. I. Relation of Dynamic Lung Function to Age and Occupation. II. Dynamic Lung Function Tests in Healthy Miners and those with Bronchitis and Emphysema and Silicosis. III. Static Lung Function Tests in Ruhr Miners. IV. Bronchitis of Miners	343–5
Furukawa	Transition of Silicosis and Silicotuberculosis at Matsuo Mine. IV. Silicosis and Cardio-Pulmonary Function	345
King, Yoganathan & Nagelschmidt	Effect of Diamond Dust alone and mixed with Quartz on Lungs of Rats	345
King, Zaidi, Harrison & Nagelschmidt	Tissue Reaction in Lungs of Rats after Inhalation of Coal Dust containing 2% of Quartz	345
Nagelschmidt, Nelson, King, Attygalle & Yoganathan	Recovery of Quartz and other Minerals from Lungs of Rats	346

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller.
Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the " Bureau of Hygiene & Tropical Diseases ", and crossed " Westminster Bank Ltd.".

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Mosinger, Fiorentini, El Feki & Cartouzou	Metabolism of Silica after Intraperitoneal Administration of High Doses of Quartz	346
Gross, Westrick & McNerney ...	Progression of Experimental Silicosis in Rat	347
Kersten, Krisch & Staudinger ...	Effect of Silicic Acid on Oxidative Phosphorylation	347
Vigliani & Pernis	Immunological Factors in Pathogenesis of Hyaline Tissue of Silicosis	347
Mosinger	Vascular Changes in Pulmonary Silicosis	348
Marks, James & Morris	Treatment of Experimental Silicosis with Compound 48/80	348
Moretti, Costa & Paoli	Value of C-Reactive Protein Estimation in Silicosis and Silico-Tuberculosis	348
Löblich, Koch & Nordmann ...	Absorption of Assimilated Dusts; Kieselguhr	348
King, Yoganathan & Nagelschmidt	Tissue Reactions produced by Calcium Fluoride in Lungs of Rats	348
Süssmaier	Air-Line Respirators for Stone-Masons	349
Elkins	Labelling Requirements for Toxic Substances	349
Lewis	Method for Reporting Toxicological Information	349
Decker; Byerrum; Decker; Hoppert; Langham; MacKenzie ...	Chronic Toxicity Studies. I. Cadmium Administered in Drinking Water to Rats. II. Hexavalent and Trivalent Chromium Administered in Drinking Water to Rats ...	349, 350
Graham	Unsuspected Benzene Contamination in Can-Making Process	350
Elsea & Paynter	Toxicological Studies on Bis Oxide	350
Pfitzer, Yevich, Greene & Jacobson	Acute Toxicity of Red Fuming Nitric Acid-Hydrofluoric Acid Vapour Mixture	351
Darke & Warrack	Bronchiolitis from Nitrous Fumes	351
Amdur	Respiratory Response of Guineapigs to Sulphuric Acid Mist	351
Nakanishi & Namiki	Symptoms in Workers exposed to Isocyanates	352
Henschler	Toxicity of Modern Tricresylphosphate	352
Baker, Whitney & Worden ...	Toxic Hazard from Continuous-Flow Heat-Volatilized Insecticidal and Acaricidal Aerosols	352
Vandekar	Toxic Properties of Demeton-Methyl	352
Hayes, Quinby, Walker, Elliott & Upholt	Storage of DDT and DDE in People with different Degrees of Exposure to DDT	353
Shirakawa	Toxicity of Benzene Hexachloride and DDT. I. Toxicity Tests of Insecticides after Administrations to Laboratory Animals	353
J. Amer. Med. Ass.	Some Medicolegal Aspects of Occupational Dermatoses ...	354
Netherlands Society of Allergy	Occupational Allergy Lectures at the Hague 1958	354
Madhekar	Toxic Hazards in Penicillin Manufacture	355
Morris	"Chrome" Dermatitis; Chemistry of Shoe Leather	355
Long	Subungual Haemorrhage in Pan Washers	355
Practitioner	Radiation Hazards	356
Lieben	Shoe-Fitting Fluoroscopes—Illegal in Pennsylvania	357

ATMOSPHERIC POLLUTION

Carey, Phair, Shephard & Thomson	Effects of Air Pollution on Human Health	357
Lupu & Velikan	Pneumoconiosis in Children of Industrial Towns	357

PHYSIOLOGY AS APPLIED TO HYGIENE

Starlinger	Daily Fluctuation in Urinary Excretion of Electrolytes and 17–21 Dihydroxy-20-Ketosteroids; Modification by Different Working and Climatic Conditions	358

HYGIENE OF BUILDINGS

Heat Regulation, Ventilation and Lighting

Bedford	Heating and Ventilation in relation to Human Comfort ...	358

SANITATION

Water and Swimming Baths

Habs & Langeloh	Atypical Coliform Bacteria in Examination of Water ...	359
Guthof & Dammann	Enterococcus Test in Examination of Drinking and Surface Waters	359

Sewage, Trade Waste and Refuse Disposal

Gameson & Wheatland	Ultimate Oxygen Demand and Course of Oxidation of Sewage Effluents	359

SANITATION—*cont.*

Sewage, Trade Waste and Refuse Disposal—*cont.*

PAGE
Downing & Scragg ... ... Effect of Synthetic Detergents on Rate of Aeration in Diffused-Air Activated Sludge Plants 360
Truesdale ... ... Foaming of Liquids containing Synthetic Detergents ... 361

FOOD AND NUTRITION

Foodstuffs

Royal Soc. Promotion Health J. Symposium on Food Hygiene Regulations 361
Mair ... ... Food Hygiene in Open Air 362
Cooke ... ... Slaughterhouses 362
Williams ... ... Lead and Arsenic Poisoning: Toxicity of Lead Arsenate Spray Residues 362
Marini & Gallasso ... ... Serological Control of Meats Used in Sausages 363
Santopadre & Dell'Omodarme ... Hygienic Control of Edible Shell-Fish Industry 363
Díez Martín ... ... Shell-Fish Purification Methods: Oysters, Clams and Mussels 363
Bearns & Girard ... ... Effect of Pasteurization on *L. monocytogenes* 364

Food Poisoning

Public Health Lab. Service ... Food Poisoning in England and Wales, 1957 364
Skulberg .... Fish-Borne Type B Botulism 365

BACTERIOLOGY AND IMMUNITY

General

Gintscheff ... ... New Media for Differentiation of Bacteria 365
Annear ... ... Drying Bacteria from Frozen and Liquid State 366
Holden ... ... Apparatus for Vacuum Distillation and for Freeze-Drying 366
Schmidt, Feldmann & Dobberstein Stability of Biological Characters of Bacteria after Drying and Freeze-Drying 366
North & Doery ... ... Protective Action of Venoms containing Phosphatidase-A against certain Bacterial Exotoxins 367
Dold, Reimold & Damminger ... Development of Oral Bacterial Flora in Newborn Infant ... 367
Torloni & Borzani ... ... Filtration Method for Determination of Concentration of Micro-organisms in Air 367
Decker, Kuehne, Buchanan & Porter ... ... Design and Evaluation of Slit-Incubator Sampler 367
Hammond ... ... Ammonium Alginate Wool as Filter for collecting Micro-organisms from Large Volumes of Air 367
Harper, Hood & Morton ... ... Technique for Studying Survival of Air-Borne Micro-organisms 367
Ferry, Brown & Damon ... ... Loss of Viability of Bacterial Aerosols. III. Factors affecting Death-Rates of Certain Non-Pathogens 368
Lowbury & Lilly ... ... Contamination of Operating-Theatre Air with *Cl. tetani* ... 368
Kinmonth, Hare, Tracy, Thomas, Marsh & Jantet ... ... Studies of Theatre Ventilation and Surgical Wound Infection 368
Sompolinsky ... ... Influence of Antibiotics on Air Bacteria in Operating Theatre 368

Bacteriostatic and Bactericidal Substances: Disinfection

Waterworth ... ... Spurious Growth Inhibition by Antibiotic Discs having Lactose Base 368
Mohberg & Johnson ... ... Binding of Synnematin and Penicillin by Bacterial Cells ... 369
Jay, Weiser & Deatherage ... Inhibition in Beef of Chlortetracycline-Resistant Bacteria by Sub-Bacteriostatic Concentrations of Antibiotic ... 369
Kunin & Finland ... ... Demethylchlortetracycline 369
Vogel & Crutcher ... ... Bio-assay and Excretion of Amphotericin B in Patients with Systemic Mycoses 370
Chick, Evans & Baker ... ... Inhibitory Effect of Amphotericin B on Localized *Rhizopus oryzae* Infection 370
Griffith, Stephens, Wolfe, Boniece & Lee ... ... Propionyl Erythromycin 370
Bradley ... ... Interactions between Phosphate and Nystatin 370
Bunn & Baltch ... ... Clinical Experiences with Kanamycin 370
Weber ... ... Staphylococcic Endocarditis treated with Ristocetin 371
Verwey, West & Miller ... ... Laboratory Studies of Streptogramin 371
Wallach & Wagner ... ... Biological Disposition of Streptovaricin 371
Schubert & Cornell ... ... Determination of Diphtheria and Tetanus Antitoxin by Haemagglutination Test in Comparison with Tests *in vivo* 371
Stuart, Ortenzio & Friedl ... Variations in Phenol Coefficient Testing 372

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances: Disinfection—*cont.*

		PAGE
Wright & Shternov	Disinfectant Testing: Adaptation of Phenol Coefficient Test Method to *Myco. tuberculosis*	372
Darmady, Hughes & Jones	Thermal Death-Time of Spores in Dry Heat in relation to Sterilization of Instruments and Syringes	372
Darmady, Hughes, Jones & Tuke	Sterilization by Conducted Heat	372
Rice	Testing of Air-Filters for Hospital Sterilizers	372
Magee & Oakes	Sterilization Procedure Examination	373
Barson, Peacock, Robins & Wilkinson	Factors influencing Sterilization by Low Pressure Steam. I. Design and Instrumentation. II. Influence of Water Content of Cotton Gowns on Equilibrium Times	373

Individual Bacteria

Vella	Salmonellosis in Lizards of Ghana	374
Mortelmans	Salmonella Strains in Animals in Belgian Congo and Ruanda-Urundi	374
Hopton	Differential Effect of Temperature on Gas Production by Coliform Organism	374
Chatterjee, Banerjee & Chaudhuri	Effect of Antiserum on Bacterial Adaptation. III. Standardization of Triphenyl Tetrazolium Chloride Technique and Effect of Adenosine Triphosphate on Adaptation of Bacteria exposed to Antiserum	375
Banerjea, Chatterjee & Mukherji	Association of *E. coli* Types with Gastro-Enteritis in Different Age-Groups	375
Hamon	Study of Pattern of Sensitivity of *E. coli* from Infantile Gastro-Enteritis to Different Colicin Types	375
Jacob & Wollman	Processes of Conjugation and Genetic Recombination in *E. coli*. IV. Inducible Prophages and Measure of Genetic Segments Transferred during Conjugation	375
Ostrom	Oral Flora in Experimental Airborne Infection: *K. pneumoniae* as Indicator Organism	376
André, Audebaud & Tran Van Du	Rapid Diagnosis of Diphtheria by means of Cytopathogenic Effect of Toxin Present on Throat Swabs	376
Peizer, Bosso & Widelock	Semi-Synthetic Autoclavable Medium for Routine Tuberculosis Laboratory	376
Dekker & Huitema	Importance of Zinc for Growth of Surface-Culture of *Myco. tuberculosis* var. *bovis* and Large-Scale Production of Tuberculin Purified Protein Derivative	376
Haagen & Haagen-crodel	Behaviour of Tubercle Bacilli in Tissue Culture	377
Willcox	Simplified Sodium Hydroxide Method for Culture of Tubercle Bacilli from Sputum	377
Kapral & Stinebring	Effect of Glucose on Tuberculin Reaction in Tissue Culture	377
Greenberg, Eidus & Diena	Vital Staining Method for Rapid Estimation of Bacterial Count of BCG Vaccine	378
Millman	Formation of Protoplasts from Mycobacteria by Mycobacteriophage	378
Braun & Lebek	Biology of Human and Bovine Types of *Myco. tuberculosis*	378
Lyon, Lichstein & Hall	Influence of Age on Metabolic Activity of *Myco. tuberculosis*	378
Schweiger & Vandra	Catalase Activity of *Myco. tuberculosis*	378
Vandiviere, Melvin & Kennedy	Titration of Cord Formation as Measure of Pathogenicity of Wild-Type Acid-Fast Bacilli, Typical and Atypical	379
Youatt	Uptake of Isoniazid by washed Cell Suspensions of Mycobacteria and other Organisms	379
Youatt	Metabolism of Isoniazid by *Myco. tuberculosis* BCG	380
Urbančík	Bacteriotropic Activity of Isoniazid in Presence of certain other Compounds	380
Lutz & Witz	Therapeutic Effect of Isoniazid-Streptovaricin Association on Experimental Tuberculosis in Guineapigs	380
Libermann	Isoniazid-Resistant Strains of *Myco. tuberculosis* Highly Pathogenic for Guineapigs	381
Viallier & Cayré	Bactericidal Activity of Cycloserine on *Myco. tuberculosis*	381
Viallier & Cayré	Tubercle Bacilli Resistant to Cycloserine	381
Steenken, Montalbine, Smith & Wolinsky	Antituberculous Activity of Thiocarbanidin *in vitro*	382
Kuźniecow	Lyophilized Antituberculosis Vaccine prepared from Streptomycin Sensitive and Resistant BCG Bacilli, in Experiments on Laboratory Animals	382
Cohn, Davis & Middlebrook	Airborne Immunization against Tuberculosis	383
Halpern, Biozzi, Stiffel & Mouton	Correlation between Phagocytic Activity of Reticulo-Endothelial System and Production of Antibodies to Bacteria	383

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Pöhn	Differentiation of Staphylococci	384
Sedlák & Průchová	Laboratory Detection of Staphylococcal Enterotoxin	384
Grün	New Staphylococcal Antigen	384
DiSalvo	Desoxyribonuclease and Coagulase Activity of Micrococci	384
Casman	Serologic Studies of Staphylococcal Enterotoxin	384
Richou, Kourilsky & Chirol	Toxigenicity of Staphylococci held in Contact with Penicillin and Streptomycin for Long Periods	384
Cohen, Dzury & Michelini	Immune Responses to *Staph. aureus* Antigens	384
Dóbiaś & Balló	Staphylococcal Alpha-Antitoxin Titres in Infants, Children and Adults not suffering from Skin Infections	384
Dressler	Value and Reliability of Bacitracin Screen Test for identifying Lancefield Group-A Haemolytic Streptococci	385
Halperen, Donaldson & Sulkin	Identification of Streptococci in Bacterial Mixtures and Clinical Specimens with Fluorescent Antibody	385
Stollerman, Kantor & Gordon	Accessory Plasma Factors involved in Bactericidal Test for Type-Specific Antibody to Group A Streptococci. I. Atypical Behaviour of Some Human and Rabbit Bloods	385
Pakuła, Fluder, Hulanicka & Walczak	Transformation of Streptococci	385
Pakuła, Hulanicka & Walczak	Transformation Reactions between Streptococci, Pneumococci and Staphylococci	385
Köhler & Mochmann	Isolation of Streptococci from Tonsillar Region and Antistreptolysin Titres in Pigs	385
Richou & Richou	Titration of Antistreptolysin in Serum	385
Mergenhagen, Thonard & Scherp	Synergistic Infections. I. Experimental Infections with Anaerobic Streptococci	386
Wundt	Typing of Brucellae and its Importance in Systematics of Genus Brucella	386
Abernathy, Bradley & Spink	Increased Susceptibility of Mice with Brucellosis to Bacterial Endotoxins	386
Spink & Anderson	Infection of Mice with G Variants of *Br. abortus*	386
Spink & Anderson	Influence of Cortisone on Infection in Mice caused by Strain 19 *Br. abortus*	386
Pannell	Protection against Experimental Tularaemia in Mice. I. Altered Susceptibility of White Mice to Tularaemia after *H. pertussis* Vaccination. II. Immunogenicity of *Bact. tularense* Filtrates in Mice and Enhancement by *H. pertussis* Vaccine	387
Cameron & Meyer	Metabolic Studies on *Br. neotamae*	387
Te Punga & Preston	Intratracheal Infection of Mice with *H. pertussis*	387
Seki, Maejima, Maki, Kitada & Maeda	Studies on Whooping Cough by Intratracheal Inoculation Method	387
Urano	Haemolytic Phenomenon of *H. pertussis*	387
Mota	Mast Cell and Histamine in Rat Anaphylaxis: Effect of *H. pertussis*	387
Uchida, Yamaguchi, Nagai, Kikuchi, Hayashi, Koganezawa & Tsurugaya	Effects of *H. pertussis* and its Cell Components on Blood Picture of Rabbit	388
Maitland & Guérault	Some Surface Components of *H. pertussis*: Immunizing Antigen, Histamine-Sensitizing Factor and Agglutinogen	388
Cohen	Establishment of Dried Standard Pertussis Vaccine	388
Logan, Griffiths & Mason	Clearance of Radio-iodinated Pertussis Vaccine from Lungs of Immunized and Non-Immunized Mice after Intratracheal Administration	388
Osipova	Causative Organism of Bronchisepticosis and its relation to *H. pertussis*. Cultural and Antigenic Characteristics of *Br. bronchiseptica*	388
Selenka	Differentiation of *Ps. pyocyanea* from *Ps. fluorescens* and *Ps. putida* on TTC Medium	389
Wolff & Bohlander	Serological Classification of Pathogenic Leptospires. Analysis and Comparison of 6 Strains related to Serotypes of the Hebdomadis Sero-Group	389
Varfolomeeva	Properties and Nomenclature of *L. perepelitsin*	389
Kaufman & Humphries	Nutritional Requirements of *Cl. tetani*. I. Chemically Defined Medium	389
Guha, Chakravarti & Ghosh	Brain Metabolism: Action of Tetanus Toxin on Acetylcholine System of Rat Brain	389
Meisel, Trembowler & Pogorzelska	Agglutinins and Incomplete *Cl. perfringens* Type A Antibodies in Human Serum	390
Moussa	Complexity of Toxins from *Cl. septicum* and *Cl. chauvoei*	390

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Treadwell, Jann & Salle ...	Factors affecting Rapid Germination of Spores of *Cl. botulinum*	390
Boyles & Lincoln	Separation and Concentration of Bacterial Spores and Vegetative Cells by Foam Flotation	390

Fungi

Larsh & Shepard	HeLa Cells and *H. capsulatum.* Phagocytosis and Subsequent Intracellular Growth	390
Cozad	Whole Yeast Cell Agglutination Test in Rabbits experimentally infected with *H. capsulatum*	391

Bacteriophages

Landy, Trapani & Shear	Interference by Endotoxic Polysaccharides with Inactivation Coliphage by Human Serum	391
Chase & Doermann	High Negative Interference over Short Segments of Genetic Structure of Bacteriophage T4	392
Northrop	Origin of Bacterial Viruses. V. Effect of Temperature on Terramycin-Resistant and Phage-Producing Cells of *B. megatherium* Cultures	392

Viruses

Henle; Deinhardt; Bergs; Henle	Persistent Infections of Tissue Cultures. I. General Aspects of System. II. Nature of Resistance to Vesicular Stomatitis Virus. III. Quantitative Aspects of Host Cell-Virus Interactions	392–4
Bader & Morgan	Latent Viral Infection of Cells in Tissue Culture. VI. Role of Amino Acids, Glutamine and Glucose in Psittacosis Virus Propagation in L Cells	394
Imagawa & Adams	Propagation of Measles Virus in Suckling Mice	394
Ruckle	Studies with Monkey-Intra-Nuclear Inclusion-Agent (MINIA) and Foamy-Agent derived from spontaneously degenerating Monkey Kidney Cultures. I. Isolation and Tissue Culture Behaviour of Agents and Identification of MINIA as closely related to Measles Virus. II. Immunologic and Epidemiologic Observations in Monkeys in Laboratory Colony	394, 395
Glasgow, Sanchis-Bayarri & Morgan	Delayed Hypersensitivity *in vitro.* III. Effect of Cortisone on Cytotoxicity of Mumps Viral Antigen	395
Brandt	Inclusion Body Formation with Newcastle Disease and Mumps Viruses in Cultures of Chick Embryo Cells ...	395
French & Dineen	Primary Isolation of Influenza A Virus: Optimal Conditions for Amniotic Infection	395
Wang & Lin	Biological Properties of Far East Influenza Virus	395
Mogabgab, Pelon, Burch & Holmes	Characteristics of Asian Strain of Influenza A	395
Cleeland & McKee	Antigenic Variation of Asian Influenza Virus	396
Padgett & Walker	Enzymatic Variants of Influenza Virus. II. Effect of Environmental Factors on Enzymatic Characteristics of Variant of Influenza B Virus	396
Fazekas de St. Groth & White ...	Dose-Response Relationship between Influenza Viruses and Surviving Allantois	396
Fazekas de St. Groth & White ...	Comparison of Infectivity of Influenza Viruses in 2 Host Systems: Allantois on Intact Eggs and surviving Allantois-on-Shell	396
Schmidt & Grossgebauer	Mixtures of Virus and Red Cells in Sedimentation Tubes	396
Pelon, Mogabgab, Dietlein, Burch & Holmes	Antibody response to Asian Influenza Vaccination in Man	397
Matumoto, Uchida, Hoshika & Matsuyama	Isolation of Intermediate Type of Adenovirus from Fatal Case of Infantile Pneumonia	397
Lennette, Fox, Schmidt & Culver	Coe Virus: New Virus recovered from Patients with Mild Respiratory Disease	397
Dubreuil & Pavilanis	Simplified Synthetic Medium for *in vitro* Cultivation of Animal Cells and Poliomyelitis Virus	398
Likar & Wilson	Interaction of Poliovirus and Host Cells *in vitro.* I. Effect of Environmental Temperature	398
Mandel	Interactions of Poliomyelitis Virus, Antibody and Host Cells in Tissue Culture System	398
Binn & Hilleman	Detection of Poliovirus 1 in Monkey Kidney Cultures inoculated with Overwhelming Dose of Adenovirus 4	398
Schmidt & Lennette	Behaviour of Different Strains of Poliomyelitis Virus in Complement-Fixation Reaction. I. Comparison of Sensitivity of Antigens derived from Laboratory Strains and Patient's own Infecting Strain	398

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
Roizman, Mayer & Rapp ... ... Immunochemical Studies of Poliovirus. III. Further Studies on Immunologic and Physical Properties of Poliovirus Particles Produced in Tissue Culture 399
Romano ... ... Determination of Formaldehyde in Poliomyelitis Vaccine ... 399
Dalldorf & Weigand ... ... Poliomyelitis as Complex Infection 399
Sommerville, McIntosh & Carson Growth Cycle of ECHO Viruses in Tissue Culture. I. Maturation and Release of ECHO Virus Types 1, 2, 7 and 11, from Monolayer Cultures of Monkey Kidney Cells 400
Drouhet ... ... Cytopathogenic Effect of ECHO Virus Type 10 400
Eggers ... ... Quantitative Studies of Complement-Fixation Test with Lymphocytic Choriomeningitis Virus 400
Clarke & Casals ... ... Techniques for Haemagglutination-Inhibition with Arthropod-Borne Viruses 400
Blaškovič ... ... Natural Foci of Equine Encephalomyelitis in Czechoslovakia 401
Řeháček ... ... Elimination of Virus of Eastern Equine Encephalomyelitis in Faeces of experimentally infected Ticks *Ixodes ricinus* L. and *Dermacentor marginatus* Sulz 401
Gresíková ... ... Excretion of Tick-Borne Encephalitis Virus in Milk of Subcutaneously Infected Cows 401
Benda ... ... Common Tick *Ixodes ricinus* L. as Reservoir and Vector of Tick-Borne Encephalitis. I. Survival of Virus during development of Tick under Laboratory Conditions. II. Experimental Transmission of Encephalitis to Laboratory Animals by Ticks at Various Stages of Development ... 401
Welsh, Neff & Lennette ... Isolation and Identification of Turlock Virus in Tissue Culture 401
Lavillaureix, Vermeil & Petrovic Pathogenicity of West Nile Virus for Gerbils and White Mice 402
Tikhonenko & Borodina ... ... Composition and Content of Nucleic Acids in Brain of White Mice infected by Japanese B and Tick-Borne Encephalitis Viruses 402

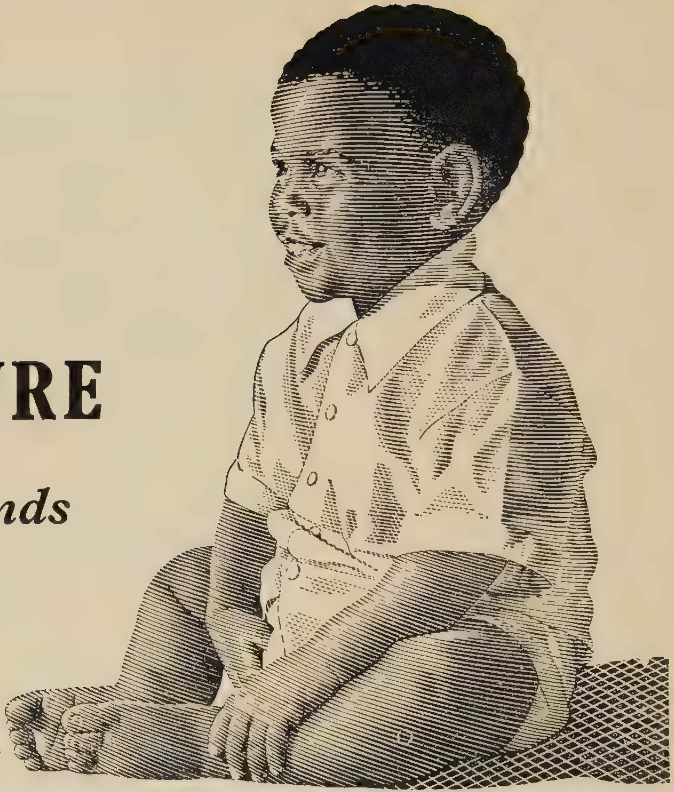
Immunity

Burnet ... ... Modification of Jerne's Theory of Antibody Production by means of Concept of Clonal Selection 402
Nossal ... ... Antibody Production by Single Cells 403
Walton & Ellis ... ... Method for Serial Determinations of Serum Complement ... 403
Brambell ... ... Passive Immunity of Young Mammal 403
Braune ... ... Anaphylaxis in Guineapigs provoked by Precipitating Antibodies. V. Final communication 404

BOOK REVIEWS

Ciferri & Redaelli ... ... Bibliographia Mycopathologica II 404
Grumbach & Kikuth ... ... Infective Diseases of Man and their Causative Organisms ... 404

The Alphabetical List of Authors or Sources is on pages 2, 3 and 4 of cover.



HIS FUTURE

is in your hands

Will this child ever reach his 15th birthday, or will he be a victim of malaria? His future is in your hands because malaria *can* be controlled.

Five years' experience has shown 'Daraprim' to be a highly effective agent in the control of the disease. Moreover, when administered to an entire community, it is capable of breaking the malarial cycle since it interrupts the development of the parasite in the mosquito.

'Daraprim' is highly potent but tasteless and has proved an excellent suppressant in a weekly adult dosage of only 25 mgm. It is supplied in the form of 25 mgm. tablets in strip-packs of 6 and 30 for individual use, and in tins of 1,000 for larger users.

In the French Union, Tunisia and Morocco pyrimethamine is available under the trade name 'Malocide'.

'DARAPRIM'
BRAND
PYRIMETHAMINE

BURROUGHS WELLCOME & CO (THE WELLCOME FOUNDATION LTD.) LONDON

Associated Houses :
AUCKLAND BOMBAY BUENOS AIRES CAIRO DUBLIN JOHANNESBURG KARACHI MONTREAL NAIROBI NEW YORK RIO DE JANEIRO ROME SYDNEY

STREPTOMYCIN

Glaxo make all you could ask for

Ask for any form of streptomycin and you'll find that Glaxo make it. There are dry powders and ready-to-inject solutions . . . in vials and in cartridges . . . in convenient sizes and concentrations . . . and the two often needed preparations have names that are easy to write and remember—DIMYCIN and STREPOLIN. A unique streptomycin service—but only to be expected when you recall that Glaxo were first in Britain to manufacture streptomycin and are still Britain's leading streptomycin producers.

STREPTOMYCIN SULPHATE

Streptomycin Sulphate Glaxo	1 G vials in boxes of 10 5 G vials
Dry Stabilised Streptomycin Sulphate Glaxo	1 G vials in boxes of 10 5 G vials
STREPOLIN (Stabilised Injection of Streptomycin Sulphate Glaxo)	1 G vials (3 concentrations) in boxes of 10 5 G vials (3 concentrations) 1 G (2 ml) cartridges in wallets of 10
Streptomycin Sulphate for Intrathecal Injection Glaxo	50 mg ampoules in boxes of 5 100 mg ampoules in boxes of 5

STREPTOMYCIN CALCIUM CHLORIDE

Streptomycin Calcium Chloride Glaxo	1 G vials in boxes of 10 5 G vials

DIHYDROSTREPTOMYCIN SULPHATE

Dihydrostreptomycin Sulphate Glaxo	1 G vials in boxes of 10 5 G vials

STREPTODUOCIN (Streptomycin and Dihydrostreptomycin)

DIMYCIN Dry Powder	1 G vials in boxes of 10 5 G vials
DIMYCIN Stabilised Injection	1 G (3 ml) vials in boxes of 10 5 G (15 ml) vials 1 G (2 ml) cartridges in wallets of 10

Dimycin and Strepolin are Glaxo trade marks

GLAXO LABORATORIES LTD,
GREENFORD, MIDDLESEX
BYRON 3434

Most of these streptomycin preparations are available in most countries

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- **Public Health**
- **Social Services**
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- **Vital Statistics and Epidemiology**
- **Communicable Diseases (except Tropical Diseases)**
- **Diseases due to Fungi**
- **Rheumatic Diseases**
- **Heart Disease**
- **Cancer**
- **Miscellaneous Diseases**
- **Dental Hygiene**
- **Mental Hygiene**
- **Occupational Hygiene**
- **Occupational Psychology**
- **Atmospheric Pollution**
- **Physiology as Applied to Hygiene**
- **Hygiene of Buildings**
- **Sanitation**
- **Port, Ship and Aviation Hygiene**
- **Infestation and Disinfestation**
- **Food and Nutrition**
- **Bacteriology and Immunity**

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections (Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases (Yellow fever and others)**
- **Tropical Bacterial Diseases (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)**
- **Helminthic Diseases**
- **Tropical Deficiency Diseases**
- **Other conditions related to warm climates**
- **Bacteriological, Entomological, Protozoological papers related to these diseases**

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

		PAGE
Gear	Medical Resources of WHO	405
World Health Organization. Technical Report Ser. No. 158	Expert Committee on Medical Rehabilitation. 1st Report ...	405
Northern Ireland, Government of	Report on Health and Local Government Administration for 1957	405
Charron	Public Health and Hospital Insurance and Diagnostic Services Programme (Canada)	406

MATERNAL AND CHILD HEALTH

Bull. Méd. de L'A.O.F.	Medico-Social Conference, Dakar, 1957	407
Philip-Wertheimer	Maternal and Child Welfare in Cayenne	407
Medical J. Malaya	5-Year Survey of Obstetrics in Selangor	408
Foll	Perils of Childhood in Upper Burma	408
Taylor & Gorrie	Integration of Health Services for Children	408
Acheson	Environment and Growth of Children	408
Dawson, Thayer & Desforges ...	Acute Haemolytic Anaemia in Newborn Infant due to Naphthalene Poisoning	409
Van Benthem & Van Zaane ...	Cerebellar Symptoms of Thallium Poisoning	409

VITAL STATISTICS AND EPIDEMIOLOGY

Signorini & Gatta	Infant Mortality in Florence, 1945–56	409
Béhar, Ascoli & Scrimshaw ...	Causes of Death in Children in Guatemala	409
Ministère de la Santé Publique	Regional Pathology of France. Vol. II. North, East and Central Regions	410

Malaria in Saudi Arabian Oases

control regained over the vector, Anopheles stephensi

Anopheles stephensi is the most important single malaria vector in the Persian Gulf and owing to its attacks the disease is hyperendemic in the large Saudi Arabian oases of Qatif, near Dhahran, and Al-Hasa, each of which provides numerous perfect breeding sites for the vectors in complex systems of wells, springs, irrigation channels, drainage ditches, seepage areas, etc. Both oases are heavily populated. In the Al-Hasa oasis for example live some 160,000 people at a density of about 2,300 per sq. mile, a dangerously high concentration considering the enormous numbers of malaria vectors present: as many as 500-600 blood-filled *stephensi* females have been collected from one square yard of wall surface within a fifteen minute period. Paradoxically, only a few miles away in the inhospitable desert, travellers are entirely safe from infection.

Measures of control against *Anopheles stephensi* were first introduced in the fall of 1948, when a residual-spray campaign was commenced. Results were immediately successful, with almost spectacular decreases in malaria morbidity, mortality, spleen and parasite rates throughout the years 1949-1953. Then however the rates began to climb again, and it was noted that *Anopheles stephensi* were reappearing in treated buildings after only a few weeks. Clearly, the vector was developing resistance to the insecticide used, and the disease was no longer under control.

In 1955 dieldrin, most persistent of all modern insecticides, was used on an oasis-wide scale, and control was swiftly regained. Since then the morbidity rates have steadily continued to decline. In addition, there is no sign of any development of a dieldrin-resistant strain of *stephensi*. In this campaign, which is being directed by the Saudi Arabian Government, dieldrin is applied at yearly intervals.

dieldrin

dieldrin, aldrin, endrin and Phosdrin are SHELL *insecticides for world-wide use*

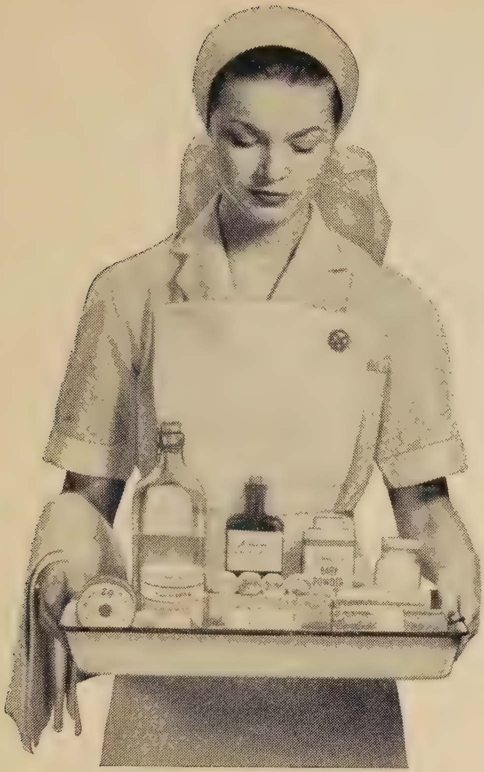
For further information apply to your Shell Company.
Issued by The Shell Petroleum Company Limited, London, E.C.3, England.

		PAGE
Pacy	Morbidity Recording in Small Country Practice	410
British J. Clin. Practice	Symposium on Tuberculosis	411

COMMUNICABLE DISEASES

Infective Diseases

Petersdorf, Forsyth & Bernanke	Staphylococcal Parotitis	412
Dóbiás, Balló & Keményvári	Staphylococcal Alpha-Antitoxin Titres in Infants, Children and Adults with Skin Infections	412
Venclík & Potužník	Use of Plasma with High Antitoxin Titre in Staphylococcal Infections	412
Silverthorne	Staphylococcal Bacteremia and Osteomyelitis successfully treated with Novobiocin	413
Berni & Stella	Contribution to Prophylaxis of Scarlet Fever with Penicillin in Infant Community	413
Schultz & Frank	Prophylactic Use of Sulphamethoxypyridazine during Streptococcal Epidemic	413
Ritchken	Erythema Infectiosum	413
Monnet, Sohier & Freycon	Skin Reaction and Complement-Fixation Test during 2 Epidemics of Mumps	413
Kolars & Spink	Thrombopenic Purpura as Complication of Mumps	414
Silhar & Maru	Dihydroergotamine in Mumps	414
Vysoká	Epidemiology of Pertussis and Parapertussis	414
Freud	Congenital Varicella	414
Marennikova	Use of Haemagglutination-Inhibition Test for Diagnosis of Smallpox	415
Cabasso, Ruesegger & Moore	Studies with Smallpox Vaccine of Chick-Embryo Origin	415
Boake	Illness in Group of Cleveland Families. XVIII. Tobacco Smoking and Respiratory Infections	415
Sampaio & Caeiro	Epidemic of Asian Influenza in Portugal	415
Gan, Mamoen & Warsa	Influenza Epidemic in Djakarta, 1957; Antibodies to Influenza Virus in Sera from General Population in Djakarta	415
Harboe, Rost, Juul & Madland	Percentage of Individuals presenting Antibody to A/Asia/57 after Influenza Outbreak in Military Camp in October 1957	416
Mellman	Influenza Encephalitis	416
Seal & Gundelfinger	Efficacy of Immunization against Asian Influenza in U.S. Navy	416
Pecenka, Izbický & Hána	Hyperimmune Equine Serum in Prophylaxis of Influenza	416
Fukumi, Nishikawa, Mizutani, Yamaguchi & Nanba	Epidemic of Adenovirus Type 3 Infections among Schoolchildren in Tokyo	416
Nicholson	Drug Treatment of Pneumonia in Adults	416
Zanen	2 Epidemics of Serum Hepatitis	417
Negrelli & Ferrari	Epidemic of Viral Hepatitis in Mantua Province	417
Masi, Timothee & Armijo	Epidemic of Parenterally Transmitted Hepatitis in Civilian Community	418
Fadeeva	Serum Prophylaxis of Infective Hepatitis in Children's Establishments in Rostov-on-Don	418
Wehrle & Hammon	Absence of Active Immunization against Infectious Hepatitis. Follow-up Study after Administration of Gamma Globulin	418
Ogino	Infectious Mononucleosis in Japan	418
Garfield & Gentry	Rupture of Spleen in Infectious Mononucleosis	419
Kauhtio, Paatela & Rantasalo	Acute Bacterial Meningitis in Children	419
Cragg & Bennett	Meningococcal Meningitis	419
Brancaccio, Tedeschi & Manzillo	Meningococcal Meningitis Treated with Intraspinal Steroids	419
Vandepitte, Beeckmans & Butiaux	4 Cases of Flavobacterium Meningitis in Newborn Infants	420
Allen & Murphy	Listeriosis	420
McMath	Poliomyelitis Neonatorum with Respiratory Paralysis	420
Ramon	Poliomyelitis Vaccines and Vaccinations	420
Gutiérrez Villegas	Results of Vaccination against Poliomyelitis with Salk-Type Vaccine Prepared in Mexico	420
Slonim & Hloucal	Formation and Persistence of Complement-Fixing and Virus Neutralizing Antibodies in Tick-Borne Encephalitis	420
Chueva	Epidemiology of Spring-Summer Encephalitis in Tartar ASSR	421
Kokernot, Smithburn, De Meillon & Paterson	Isolation of Bunyamwera Virus from Naturally Infected Human Being and Further Isolation from *Aedes circumluteolus Theo*	421



First choice in hospitals and homes

In hospitals throughout the world, where only the highest standards are acceptable, Johnson & Johnson's famous products are in constant daily use. For Johnson & Johnson is the largest organisation of surgical dressing manufacturers in the world, with the widest obtainable range of surgical dressings and nursing specialities of all kinds.

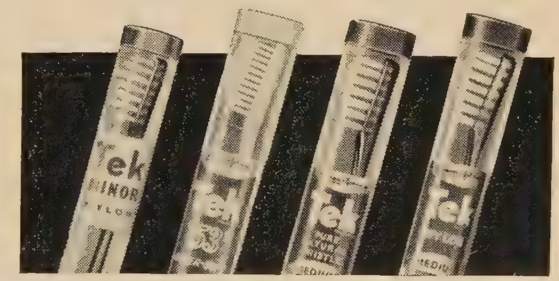
Your patients know and trust Johnson's Baby Products. The range includes every essential for a baby's care and comfort—baby powder, soap, cream and lotion and a new liquid shampoo, which cannot burn or sting the eyes.

Tek toothbrushes, also, are chosen for their outstanding quality. The range includes both nylon and bristle brushes, the super-soft Tek 53 and Tek minor, specially designed for children.

Johnson & Johnson's range of world-renowned products include:

JOHNSON'S BABY POWDER, BABY CREAM, BABY OIL, BABY SOAP, BABY SHAMPOO, BABY LOTION, BAND-AID FIRST AID DRESSINGS (ELASTIC AND PLASTIC), 'ZO' AND 'ZONAS' SPOOL PLASTERS, FIRST-AID KITS, 'ELASTIKON' ADHESIVE PLASTERS, FOOT PRODUCTS, 'MODESS' PERSONAL PRODUCTS

Johnson's
BABY LOTION
BABY POWDER
SOAP
BABY SOAP



SDBP/1/58

J&J

Johnson & Johnson

The World's most trusted name in Surgical Dressings and Baby Products

Infective Diseases—*cont.*

		PAGE
Mukherji, Chakravarty, Sur & Junnarkar …	Encephalitis in Nagpur … … … … … …	421
Chamberlain, Sudia, Burbutis & Bogue … … … …	Recent Isolations of Arthropod-Borne Viruses from Mosquitoes in Eastern U.S. … … … … … …	421
Pirè … … … … …	Epidemiology of Typhoid in Bari … … … …	422
Masi, Timothee & Armijo … …	Epidemiologic Analysis of Water-Borne Typhoid Fever Outbreak … … … … … … … …	422
Vyas … … … … …	Enteric Fever in Children … … … … …	422
Lanzo … … … … …	Prednisone Associated with Chloramphenicol in Treatment of Typhoid … … … … … … …	423
Shapiro … … … …	Relapses in Synthomycin-Treated Typhoid and Paratyphoid Patients … … … … … … … …	423
Scott … … … … …	Epidemiology of Sonne Dysentery, Stirlingshire, 1958 …	423
Cooper … … … … …	Shigellosis in Victoria … … … … … …	423
Stein & Shaff … … …	Antibiotics in Treatment of Shigella and Salmonella Enteritis … … … … … … … …	424

Tuberculosis

South Pacific Commission … …	Report of Conference on Tuberculosis in Pago Pago, American Samoa, November 1958 … … … … …	424
Northern Ireland Tuberculosis Authority … … … … …	12th Annual Report, 1957 … … … … … …	425
Dublin … … … … …	Tuberculosis Mortality and Morbidity in U.S.A. … …	425
Williams … … … …	Value of Dual Reading in Mass Radiography … … …	426
Glasgow, Corporation of …	Glasgow's X-Ray Campaign against Tuberculosis, March–April, 1957 … … … … … … …	426
Seiler, Welstead & Williamson	Report on Edinburgh X-Ray Campaign, 1958 … …	427
Neumann … … … … …	Tuberculosis Situation in Federal German Republic and Significance of Mass Radiography Surveys … … …	428
Hansen & Riddervold … …	Mass Radiography in Norway … … … … …	428
Bull. World Health Organization	Tuberculin … … … … … … … …	428
Mitchell & Jackson … …	Heaf Multiple Puncture Tuberculin Test; Comparison with Intradermal Tuberculin PPD in Cape Coloured Subject	430
Kuper … … … … …	Sensitivity to Human and Avian Tuberculin among Africans in Union of S. Africa … … … … … …	430
Manchanda, Bawa & Bhatia …	Tuberculosis in Children … … … … … …	431
Capel & Richards … … …	Transient Rounded Lesions after Tuberculous Pleural Effusion in Children … … … … … …	431
Lincoln & Adiao … … …	Late Discharge of Tubercle Bacilli in Primary Tuberculosis	431
Christensen & Nielsen … …	Chemotherapy of Pulmonary Tuberculosis; Primary Effect of Combined Specific Chemotherapeutical Treatment as revealed at Examination of 105 Patients in Danish Sanatorium … … … … … … … …	431
Cohen, Yue & Tsai … …	Comparison of Toleration, Absorption and Clinical Efficacy of Several Para-Aminosalicylic Acid Preparations in 300 Tuberculous Patients … … … … … …	432
Bartmann, Villnow & Schwarz …	Acquired Resistance and Isoniazid Medication … …	432
Cuthbert, Drimmie & Urquhart …	Study of "Tebafen" in Chronic Pulmonary Tuberculosis	432
Bachman & Freund … … …	Use of Isoniazid and Cycloserine in 84 Cases of Pulmonary Tuberculosis … … … … … … …	433
Ståhle … … … … …	Cycloserine and Viomycin in Combined Treatment of Pulmonary Tuberculosis … … … … … …	433
Schwartz & Moyer … … …	Cycloserine and Viomycin in Treatment of Pulmonary Tuberculosis … … … … … … …	433
Birkeland & Nissen-Meyer …	Pyrazinamide and Cycloserine in Treatment of Pulmonary Tuberculosis … … … … … … …	433
Toguri & Atwell … … …	Cycloserine combined with Pyrazinamide in Treatment of Pulmonary Tuberculosis … … … … …	433
Allison … … … … …	Pyrazinamide in Low Dosage in Combination with Isoniazid or Para-Aminosalicylic Acid in Treatment of Pulmonary Tuberculosis … … … … … … …	434
Ionesco-Mihàieşti, Dâmboviceanu, Dumitresco, Gancevici & Opresco	Immunization against Tuberculosis: Comparative Experiments on Immunization of Guineapigs by means of BCG, the Vole Bacillus and "Synthetic" Vaccines … …	434
Debré … … … … …	Problem of Standardizing BCG Vaccine … … …	434
Kerr & Dunbar … … …	Tuberculous Meningitis after BCG … … … …	435 *bis*

Venereal Diseases

Poulson … … … …	Clinical Interpretation of Serological Reactions in Venereal and Endemic Treponematosis … … … … …	436

Chromobacterium
Prodigiosum:
it grows rapidly at room
temperature, producing a
brilliant red pigment

The day the milk turned red

The Dairyman was understandably perturbed. A consignment of milk had turned red before bottling. Immediate laboratory investigation was set in motion; a chromogenic organism was isolated and identified as Chromobacterium Prodigiosum on Oxoid Culture Media.

We recommend for the cultivation of this organism Mannitol Peptone Agar (pH6.8) and find that chromogenesis is enhanced by incubation at room temperature in diffuse daylight.

FOR PROGRESSIVE LABORATORIES OXOID CULTURE MEDIA

REGD. TRADE MARK

The use of Oxoid Culture Media ensures constant quality and uniformity in your laboratory technique. Absolutely reliable, quick, convenient and economical, Oxoid Culture Media are available in tablet or granular form. Full details from:

OXOID DIVISION OF OXO LTD.,
Thames House, Queen Street Place,
London, E.C.4 (Central 9781)

COMMUNICABLE DISEASES—*cont.*

PAGE

Venereal Diseases—*cont.*

Rajam ... Inter-Laboratory Evaluation of Serological Tests for Syphilis in India ... 436
Bube ... Comparison of 7 Serological Syphilis Tests ... 436
Sinnecker ... Determination of Antigenicity and Unspecificity of Antigens for Serological Syphilis Reactions ... 437
Waring, Lanes & Mescon ... Biological False-Positive Results in Serologic Tests for Syphilis; Findings in Low Socio-Economic Population Group ... 437
Dulac ... Treponemal Antigens in Diagnosis of Treponematoses in Tropics ... 437
Roemer & Schlipköter ... Spirochaete Agglutination in Serodiagnosis of Syphilis ... 437
Burgess ... Syphilitic Foetus after Prenatal Penicillin Therapy ... 438
Klieneberger-Nobel ... Pleuropneumonia-Like Organisms in Genital Infections ... 438

Other Communicable Diseases

Damany & Kamat ... Meprobamate in Tetanus ... 438
Boggs, Frei & Thomas ... Clostridial Gas Gangrene and Septicaemia in 4 Patients With Leukaemia ... 438
Van Gelderen & De Man ... Cytomegalia Infantum ... 438

Zoonoses

Tasselli ... Propagation, Epidemiology and Prophylaxis of Human Brucellosis in Province of Matera ... 439
Linsert ... Brucellosis in Veterinary Surgeons ... 439
Parnas ... Examinations on Diagnostic Allergens in Brucellosis, Tularaemia, Glanders and Erysipeloid ... 439
Austoni, Bertelli & Babudieri ... Antileptospiral Antibodies and Protein Fractions of Antisera ... 440
Graber & Pomeroy ... Ornithosis: Epidemiological Study of Wisconsin Human Outbreak transmitted from Turkeys ... 440
Jannach ... Myocarditis in Infancy with Inclusions Characteristic of Psittacosis ... 440

DISEASES DUE TO FUNGI

Grin, Zec & Štern ... Hormonal Dysfunction in Adults infected with Ringworm of Scalp due to *Trichophyton* ... 441
Manson-Bahr ... Histoplasmosis in E. Africa ... 441
Miller, Ginsberg, Johnson & Bogosian ... Treatment of Histoplasmosis with Amphotericin B ... 441
Di Egidio ... Mycosis of Scrotum and Penis due to *C. albicans* ... 441
Wilson ... Cryptococcosis: Report of 9 Cases ... 442
Heinrich & Pulverer ... II. Definition and Practical Determination of *Actinobacillus actinomycetem comitans* ... 442
Manning & Robertson ... Case of Aspergillosis treated with Nystatin ... 442

RHEUMATIC DISEASES

Cornfeld; Werner; Weaver; Bellows; Hubbard; Rake ... Streptococcal Infection in School Population; Preliminary Report; Laboratory Methodology ... 443

CANCER

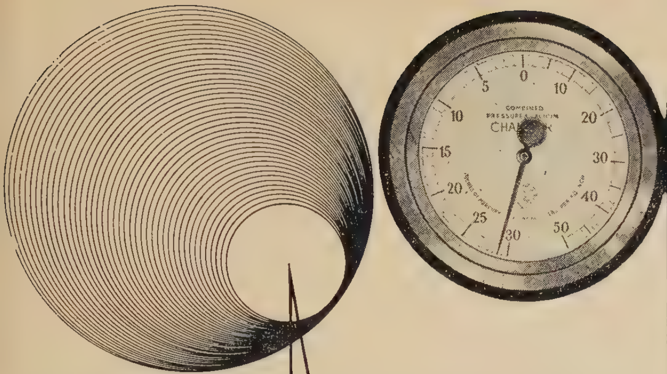
Wynder ... Laboratory Contributions to Tobacco-Cancer Problem ... 443
Doll, Hill, Gray & Parr ... Lung Cancer Mortality and Length of Cigarette Ends; International Comparison ... 444
Lyons ... Presence of 1,2,3,4-Dibenzopyrene in Cigarette Smoke ... 444
Hammond ... Association between Smoking Habits and Death-Rates ... 444

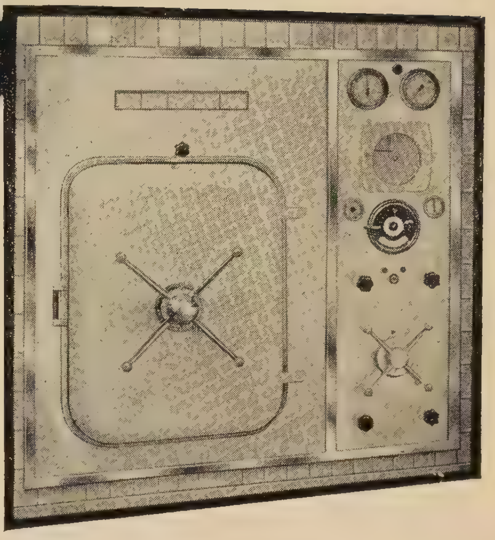
DENTAL HYGIENE

Nevitt, Witter & Bowman ... Topical Applications of Sodium Fluoride and Stannous Fluoride ... 445

OCCUPATIONAL HYGIENE

Practitioner ... Industrial Medicine ... 446
British J. Indust. Med. ... Occupation and Mortality. (i) Filial Mortality. (ii) Mortality in Mining and Quarrying Occupations. (iii) Mortalty in Transport Occupations ... 446
American Indust. Hyg. Ass. J. ... Hygienic Guide Series ... 447





HIGH PRESSURE HIGH VACUUM

Hi Speed

Manloves

STERILIZING

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE: 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 5931-2

"VISIJAR"

"PERSPEX" SPECIMEN BOXES
& APPARATUS

WILL OUTLIVE ALL SUBSTITUTES

Requests for price lists to

THE VISIJAR LABORATORY SUPPLY CO. LIMITED

149, LONDON ROAD, CROYDON, SURREY
CRO 8228/9

Silence is Golden!

TRUVOX

FLOOR POLISHER/ SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:

TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Associated Industries of New York State	4th Noise Conference	447
Keatinge & Laner	Effects of Excessive Noise on Hearing of Group of Workers	447
Wünsche	Pathogenesis and Prevention of Decompression Sickness in Airmen. II. Influence of Narcotic and Sedative Agents on Formation of Intravascular Gas Bubbles in Experimental Studies	448
Lane	Chronic Bronchitis and Occupation	448
Fletcher	Disability and Mortality from Chronic Bronchitis in relation to Dust Exposure	448
Higgins	Tobacco Smoking, Respiratory Symptoms and Ventilatory Capacity	448
Minette & Van Wijmeersch	Standardization of Technique for Nebulizing Acetyl Choline	449
Minette & Van Wijmeersch	Effects of Acetyl Choline Aerosols in Coal-Miners	449
Hasselt: Institut D'Hygiene des Mines	Pneumoconiotic Lesions in Belgian Coal-Miners; Correlation between Pathological Findings and Working History	449
Soma	Erythrocyte Sedimentation Rate of Colliers	450
Carlín	Silicosis in Peruvian Mines	450
Haferland	Graphite Pneumoconiosis and Silicosis	450
Gravenkamp	Histological Demonstration of Silicotic Tissue in Sputum in Cavitating Silicotuberculosis	450
Einbrodt	Treatment of Tissues with Formamide as New Method for Histochemical Preparation of Inorganic Substances	451
Vyskočil & Kadlec	Influence of Androgens on Development of Silicotic Granuloma	451
Makiyama	Action of Silicic-Acid-Containing Rock Powder inhaled in Animals, with special reference to Effect of Powder on Reproductive Gland and Suprarenal	451
Claeys & Quinot	Biology of Silicosis	452
Curran & Rowsell	Application of Diffusion-Chamber Technique to Study of Silicosis	452
Ceppellini & Pernis	Presence of Plasma Globulins in Hyaline Tissue in Cases of Silicosis	452
Seifert	Experimental Investigations on Matrix Theory of Silicosis	453
Nachtsheim	Effect of Quartz Dust on Esterase. Contribution to Problem of Catalytic Effects of Quartz Dust on Metabolism	453
Puccini	"Anodular" Silicosis with Interstitial Fibrotic Evolution	453
Ghiringhelli & Pernis	Increase of Antibody Production in Rabbits after Intravenous Injection of Tridymite	453
Pernis, Clerici & Bhezzi	Action of Quartz Containing Millipore Membrane Chambers introduced subcutaneously in Rats	454
Levis; Olivieri; Cappa; Pernis; Carbonara	Silicosis as Immunological Disease. I. Evolution of Lesions induced by Pure Quartz. II. Evolution of Lesions induced by Mixed Dusts	454
Ootsuka	Antibodies produced by Subcutaneous Injection of 6 Kinds of Quartz, Japanese Origin	455
Chvapil	Influence of Nutrition on Scleroproteins of Rat Lung and Liver in Experimental Silicosis	455
Levis, Olivieri & Pernis	Course of Experimental Pulmonary Silicosis in Rats with Spontaneous Tuberculous Infection	455
Zwi & Becklake	Respiratory Function of Witwatersrand Gold-Miners	456
Fletcher	Radiological Survey of Miners at Broken Hill	456
Sadoul, Senault, Macinot, Aubertin & Guillerm	Pneumoconiosis in Lorraine Iron Ore Miners	456
Thaer	Photometric Evaluation of Konimeter Samples	456
Le Bouffant	Dust Sampling Apparatus with Membrane Filters	457
Cataldi & Odaglia	Blood Coagulation in Acute Occupational Lead Poisoning	458
Albahary, Truhaut & Boudène	Test for Urinary Lead Excretion Induced by Aerosol of $CaNa_2EDTA$	458
Peryassú, Negreiros & De Carvalho	Chrome Necroses and Similar Dermatoses	458
Santiago De Oliveira	Chromism	458
West & Sunderman	Nickel Poisoning. VI. Ineffectiveness of Edathamil Calcium-Disodium	459
Roschtschin	Vanadium as Industrial Poison	459
Richeson	Industrial Thallium Intoxication	459
Guyotjeannin & Van Steenkiste	Action of Trichlorethylene on Serum Proteins and Lipids. Study in 18 Subjects Working in Polluted Atmosphere	460
Phair, Shephard, Carey & Thomson	Estimation of Gaseous Acid in Domestic Premises	460

BOOKS ON HYGIENE

H. K. LEWIS & Co. Ltd. can supply all Standard Works and Textbooks on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request.

MEDICAL AND SCIENTIFIC LIBRARY

Annual Subscription from £1 17s.6d.

The Library includes all standard and recent works in all branches of Hygiene and Sanitary Science. **Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

THE LIBRARY CATALOGUE revised to December 1956, containing a classified Index of Authors and Subjects. £2 2s. net ; postage 2s. To subscribers to the Library, £1 5s. ; postage 2s.

SECONDHAND DEPARTMENT

A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1
Telephone: EUSton 4282. Telegrams: Publicavit, Westcent, London
Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE
ATMOSPHERIC POLLUTION
OCCUPATIONAL PSYCHOLOGY
PHYSIOLOGY AS APPLIED TO HYGIENE
HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER)
including Index 30/- ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET · LONDON W·C·1 *TELEPHONE: MUSeum 3041*

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Effenberger	Danger to Passport and Customs Officers from Exhaust Gases	460
Biondi	Artisan's Work in relation to Automobilism	461
Gallo & Ghiringhelli	Occupational Disease due to Hexamethylendiamine	461
Deichmann, Radomski, MacDonald, Kascht & Erdmann	Chronic Toxicity of Octadecylamine	461
Kinosian & Hubbard	Nitrogen Dioxide Indicator	461
Deichmann, MacDonald, Coplan, Woods & Anderson	Para Nitrobiphenyl, New Bladder Carcinogen in Dog	462
Ghiringhelli & Sironi	Dimethylsulphate and Catalase	462
Ghiringhelli & Bartalini	Catalase Activity and Heinz Body Formation	462
Joffe, Gongwer & Punte	Acute and Subacute Toxicity of Bis Hydrogen Phosphite	462
Dubois	Potentiation of Toxicity of Insecticidal Organic Phosphates	463
Harger & Spolyar	Toxicity of Phosphine	463
Petty	Histochemical Proof of Organic Phosphate Poisoning	463
Samitz & Pomerantz	Effects on Skin of Nickel and Chromium Salts	463
Peryassú, Negreiros & De Carvalho	Occupational Dermatitis of Cement Workers and Sensitivity to Bichromate	464
World Health Organization. Technical Report Ser. No. 154	Post-Graduate Training in Public Health Aspects of Nuclear Energy	464
Shinn	Health Hazards from Powerful Radio Transmissions	464
Klimková-Deutschová & Odvárková	Measurement of Electrical Conductivity in Skin of Operatives Exposed to Ionizing Rays	465
Tullis	Delayed Effects of Ionizing Radiations in Man	465
Hartwig, Leffingwell & Melville	Toxic Effects of Yttrium and Lanthanum	465

ATMOSPHERIC POLLUTION

World Health Organization. Technical Report Ser. No. 157	Air Pollution. 5th Report of Expert Committee on Environmental Sanitation	466
Hemeon, Haines & Ide	Determination of Haze and Smoke Concentrations by Filter Paper Samplers	466
Cholak, Schafer, Younker & Yeager	Relationship between Sulphur Dioxide and Particulate Matter in Atmosphere	466

SANITATION

Water and Swimming Baths

Brazis, Leslie, Kabler & Woodward	Inactivation of Spores of *B. globigii* and *B. anthracis* by Free Available Chlorine	467
Velicangil & Demirhindi	Combined Method for Isolation and Identification of Coliform Bacteria	467
Zimmermann; Rheinfurth	Hygiene of Mineral Water Manufacture. I. Results of Survey and Investigations. II. Public Health Aspects	467
Jackson & Weidmann	Fluorine in Human Bone related to Age and Water Supply of Different Regions	467

Sewage, Trade Waste and Refuse Disposal

Reploh & Gängel	Hygienic and Microbiological Studies of Irrigated Sewage Fields in Bielefeld, Germany	468
Bloom, Mack & Mallmann	Enteric Viruses and Salmonellae Isolation. II. Media Comparison for Salmonellae	468
Peel	Public Health and Economic Aspects of Composting in Tropical Africa	468
Marwah	Experiment in Interruption of Man-to-Man Faecal and Helminthic Circulation in Rural Community	469

FOOD AND NUTRITION

Foodstuffs

Di Sapio	Condition of 104 Samples of Butter Marketed in Naples	469
Cioglia & Aru	Hygienic Control of Shellfish	469

Food Poisoning

Sapeika	Mussel Poisoning: Recent Outbreak	470
Vor Dem Esche & Handloser	Spread of Salmonella Infections from Hens' Eggs	470
Nikodemusz	*B. cereus* as Cause of Food Poisoning	470

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller. Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

BACTERIOLOGY AND IMMUNITY

General

PAGE
World Health Organization. Technical Report Ser. No. 147 ... Expert Committee on Biological Standardization. 11th Report ... 471
Hackenthal & Bierkowski ... Studies on Bacterial Mixtures ... 471
Kanz ... Bacterial Culture in Symbiosis by Means of New Type of Culture Plate ... 471
Hirsch, Cattaneo & Morellini ... Reduction of 2,3,5-Triphenyl-tetrazolium Chloride by Micro-organisms of Different Families ... 472
Catlin & Cunningham ... Extracellular and Intracellular Bacterial Deoxyribonucleic Acids ... 472
Olitzki ... Infection Promoting Substances ... 472
Kies, Alvord & Roboz ... Production of Experimental Allergic Encephalomyelitis in Guineapigs with Fractions isolated from Bovine Spinal Cord and Killed Tubercle Bacilli ... 472
Colover ... Experimental Allergic Encephalomyelitis induced with Combined "Purified" Spinal Cord and Bacillary Fractions ... 472
Scott ... Effects of Residual Water on Survival of Dried Bacteria during Storage ... 473
Brown & Griffith ... Syringe Device for Studies on Bacterial and other Aerosols 473
Andersen ... New Sampler for Collection, Sizing and Enumeration of Viable Airborne Particles ... 473

Bacteriostatic and Bactericidal Substances; Disinfection

Williams, Mathews & Harcourt Absorption of Penicillin V in Children ... 473
Wheatley ... Oral Penicillin in General Practice ... 473
Fraser ... Immediate Anaphylactic Shock from Oral Penicillin ... 474
Thind ... Growth Factor in Extract of *E. coli* replacing Streptomycin in Streptomycin dependent *E. coli* ... 474
Saz & Martinez ... Enzymatic Basis of Resistance to Aureomycin. II. Inhibition of Electron Transport in *E. coli* by Aureomycin ... 474
Teixeira & Scott ... Novobiocin. I. Treatment of Staphylococcal Infections in Infancy and Childhood. II. Novobiocin Concentrations in Blood of Newborn Infants and in Breast Milk of Lactating Mothers ... 474
Sacks & Pence ... Influence of *p*H on Antibacterial Action of Subtilin A ... 474
Kaplan, Heinemann, Mydlinski, Buckwalter, Lein & Hooper ... Antifungal Antibiotic produced by Strain of *Streptomyces aureofaciens* ... 475
Kutscher, Seguin, Rankow & Piro Thiostrepton, New Antibiotic ... 475
Ben-Gurion & Hertman ... Bacteriocin-Like Material produced by *P. pestis* ... 475
Brock ... Effect of Salmine on Bacteria ... 475
Aru ... Action of D Cycloserine on Enterobacteria ... 475
Schnitzer, DeLorenzo, Grunberg & Russomanno ... Chemotherapeutic Studies with 2,4-Dimethoxy-6-Sulphanilamido-1,3-Diazine ... 476
Hirsch ... Bactericidal Action of Histone ... 476
Collier & Grimshaw ... Local Action of some Antibacterial Substances against *C. ovis* in Guineapig Skin ... 476
Prindle ... Practical Aspects of Interaction of Surfactants and Disinfectants ... 476
Public Health Lab. Service ... Disinfection of Fabrics with Gaseous Formaldehyde ... 477
Hoffman & Warshowsky ... Beta-Propiolactone Vapour as Disinfectant ... 477
Wright & Mundy ... Disinfection of Clinical Thermometers. I. Oral Thermometers from General Hospital ... 477
Bridenbaugh & Moore ... Is Heat Sterilization of Local Anaesthetic Drugs a Necessity? 478

Individual Bacteria

Cohen ... Mutual Linkage between Components IX and XII in *Salm. typhi* O-Antigen ... 478
Paoletti & Buonincontro ... Disappearance Rate of Typhoid Vaccine labelled with ^{32}P and inoculated by Intravenous Route from Circulation of Normal and Immune Rabbits ... 478
Peso & Lebrum ... Methods for Studying Biochemical Properties of Bacteria; Application in Detection of Pathogenic Intestinal Bacteria 479
Stehr ... Biology of *Salm. paratyphi B* ... 479
McDonagh & Smith ... Significance of Abattoir in Salmonella Infection in Bradford 479
Collard & Sen ... Salmonella Types isolated in Ibadan, Nigeria ... 480
Le Minor, Néel, Delage & Dréan New Salmonella Serotype ... 480
Le Minor, Darrasse & Charié-Marsaines ... 3 New Salmonella Serotypes ... 480
Reavis & Ewing ... Fermentation of Raffinose by Shigellae ... 480
Sasarman, Tulpan & Vulcan ... Phase Variation of *Sh. flexneri* Type 2a ... 480

BUREAU OF HYGIENE AND TROPICAL DISEASES

Occupational Hygiene Abstracts

At the request of the Joint Committee of the Institution of Mining Engineers and the Institution of Mining and Metallurgy, the Bureau of Hygiene and Tropical Diseases issues in reprint form the sections of the *Bulletin of Hygiene* which contain abstracts of papers relating to Occupational Hygiene, Atmospheric Pollution, Occupational Psychology, Physiology as Applied to Hygiene, and the Hygiene of Buildings.

As a large part of the *Bulletin of Hygiene* is purely medical in character the Joint Committee, who are mainly interested in the problems of dust, heat and humidity in mines, asked the Bureau to issue separate reprints of these particular sections, so that they may be available to the large body of non-medical men who are directly concerned with the well-being and efficiency of mine workers and of workers in other industries in which there are health problems of a similar nature.

The price of the separate abstracts is 3s. per issue, or 30s. for a complete set of the 12 monthly issues each year, including index. The original pagination of the *Bulletin of Hygiene* is retained in the abstracts, together with the appropriate section of the table of contents. The first issue, entitled *Bulletin of Hygiene Reprints*, began with the *Bulletin of Hygiene* for January, 1951 (Vol. 26, No. 1). From January, 1958, the title has been changed to *Occupational Hygiene Abstracts*.

Applications for the *Occupational Hygiene Abstracts* should be addressed to the Bureau of Hygiene and Tropical Diseases, Keppel Street, London, W.C.1, together with a remittance of 30s.

Individual Bacteria—*cont.*

		PAGE
Ikari, Robbins & Parr	Action of Colicines on *Sh. boydii* and on Rough and Mucoid Variants	481
McNaught & Roberts	Enteropathogenic Effects of Strains of *E. coli* isolated from Cases of Gastro-Enteritis	481
Taylor, Maltby & Payne	Factors influencing Response of Ligated Rabbit-Gut Segments to Injected *E. coli*	481
Welsch	Production of "Protoplasts" of *E. coli* by means of Glycine in Presence of Sucrose	481
Banerjea	Nucleic Acid Contents of *E. coli* and their relation to Bacterial Dissociation	482
Deering	Radiation Sensitivity of Filamentous *E. coli*	482
Sarkar & Tribedi	Is *Alcaligenes faecalis* a Pathogen, Contaminant or Normal Intestinal Flora?	482
Sedlák & Matějovská	Taxonomy and Systematics of *Aerobacter cloacae* Groups ...	483
Pope & Stevens	Properties of Crystalline Diphtheria Toxin-Protein: Observations on Phosphate-Stable Antigen: Observations on Pepsin and Trypsin Stable Antigens	483
Eylan & Israeli-Furmanow ...	Cultivation of *Myco. tuberculosis* on Millipore Filters ...	484
Lenert, Stasko & Hobby	Cultivation of Bacille-Calmette-Guerin Strain of *Myco. tuberculosis*	484
Hobby, Lenert & Stasko	Biologic Activity of Crude Extracts of BCG	484
Schellenberg	Tubercle Bacilli in HeLa and Other Tissue Cultures	484
Yamada	Influence of Antituberculous Drugs contained within Samples on Cultivation of Tuberculous Bacilli	485
Penikett & Lister	Estimation of Hydrogen Peroxide in Culture Media	485
Šourek & Šír	Antigenic Relationships between Native Culture Filtrates of some Representatives of Mycobacterials	485
Gilani & Selkon	Niacin Test for Differentiating Human Tubercle Bacilli from other Mycobacteria	485
Murohashi; Yoshida	Method for estimation of Number of Colonies recoverable from Sputum based on Number of Tubercle Bacilli detected on Smears. I. Estimation Formulas and Preliminary Test. II. Simplification of Method by Use of Estimation Graph or Bacterial Count Table to Determine Dilution Degree for Quantitative Cultivation. III. Confidence Interval of Estimated Viability	486
Murohashi & Yoshida	Improvement of Malachitegreen-Fuchsin Staining	486
Gancevici, Petrovici & Davindescu	Structural Details in Mycobacteria after Hydrolysis ...	486
Vandiviere, Vandiviere & Willis	Quantitative Studies of Virulence	486
Gernez-Rieux, Tacquet & Gérard	Action of BCG Sensitive or Resistant to Isoniazid on Experimental Tuberculosis in Rabbits. I. Influence on General Development of Tuberculosis	487
Gernez-Rieux, Tacquet & Macquet	Influence of Corticoid Hormones on Tuberculous Infection produced in Guineapig and Rabbit by Isoniazid-Resistant Tubercle Bacilli	487
Tacquet & Gérard	Relation between Delay of Appearance of Cultures on Egg-Medium and Sensitivity of *Myco. tuberculosis* to Antibacillary Substances	488
Guillaume, Tacquet & Ponté ...	Interference by Amino Acids in Chemical Estimation of Cycloserine	488
Viallier & Cayré	Variability of Multiple Resistance of Tubercle Bacilli. I. Sensitivity to PAS Salt of Isoniazid	488
Viallier & Cayré	Enzymatic Activity and Virulence of Isoniazid Resistant Strains of *Myco. tuberculosis*	489
Tarshis	Development of Atypical Variants of H37Rv Strain of *Myco. tuberculosis* under Influence of Streptomycin and Isoniazid *in vitro*	489
O'Grady	Tuberculin Therapy of Mouse Thigh Tuberculosis	489
Koga	Tuberculosis and Stress	490
Marwin	Use of Tellurite-Glycine Agar in Detection and Isolation of Pathogenic Staphylococci	490
Bormann	Climate and Bacterial Population of Naso-Pharynx	490
Greendyke, Constantine, Magruder, Dean, Gardner & Morgan	Staphylococci on Medical Ward with special reference to Faecal Carriers	490
Burkinshaw, Hamer & Swier ...	Staphylococcal Nasal Carrier Rates in Maternity Hospital	491
Taplin & Goldsworthy	225 Strains of *Staphylococcus* isolated from Mouth	491
Knight, White & Martin	Effect of Antimicrobial Drugs on Staphylococcal Flora of Hospital Patients	491

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

PAGE
Andrieu, Monnier & Bourse ... Correlations between Sensitivity to 14 Antibiotics of Pathogenic Staphylococci of Human Origin 491
Robinson, Thatcher & Gagnon ... Staphylococcal Toxins. IV. Purification and Metallic Requirements of Specific Haemolysins 491
Tonelli & Marinelli ... ... Phosphatase Activity of Staphylococci 492
Johanovský ... ... Role of Hypersensitivity in Experimental Staphylococcal Infection 492
Towers & Gladstone ... ... 2 Serological Tests for Staphylococcal Infection 492
Bell, Owen & Jellison ... ... Group A Streptococcus Infections in Wild Rodents 492
Krause ... ... Bacteriophages of Haemolytic Streptococci. II. Antigens released from Streptococcal Cell Wall by Phage-Associated Lysin 492
Holmes ... ... Type Specific Antibodies to *Str. pyogenes* 492
Johnson & Furrer ... ... Hyaluronic Acid: Required Component of Beta Haemolytic Streptococci for Infecting Mice by Aerosol 493
Syrůček & Brůčková ... ... Sulphonamide Resistance in Beta Haemolytic Streptococci *in vitro* 493
Sulitzeanu ... ... Relationship of Agar Diffusion Patterns to Agglutinating and Protective Properties of *Br. suis* Antisera 493
Pittman ... ... Effect of *H. pertussis* on Immunological and Physiological Reactions 493
De Bruijn ... ... Antigenic Structure of Reiter Strain of *Trep. pallidum.* I. Presence of "Ubiquitous Lipid" in Protein Fraction ... 494
Ahrens & Muschner ... ... Present Status of Spirochaetal Aetiology of Multiple Sclerosis. Borrelia Findings in Case of Multiple Sclerosis 494
Roach, Rosenberg & Ichelson ... Immunological Considerations of Antigenic Fraction from Cultures of Spirochaetes isolated from Cerebrospinal Fluid of Multiple Sclerosis Cases 494
Soru, Istrati, Poenaru & Sternberg ... ... Comparative Chemical Study of Tetanus Toxin and Toxoid 494
Garrod ... ... Chemoprophylaxis of Gas Gangrene 495
Harris-Smith, Smith & Keppie ... Production *in vitro* of Toxin of *B. anthracis* previously recognized *in vivo* 495
Barber, Zilişteanu & Nafta ... New Method for Isolation of Polyglutamic Acid from *B. anthracis* 495

Fungi

Blyth ... ... Influence of Antibiotics on Experimental Moniliasis. I. Penicillin, Streptomycin, Chloramphenicol and Viomycin 496
Dobek ... ... Action of Isoniazid on *Nocardia asteroides in vitro* and *in vivo* 496

Bacteriophages

Symonds & McCloy ... ... Irradiation of Phage-Infected Bacteria: Bearing on Relationship between Functional and Genetic Radiation Damage 496
Levine, Barlow & Van Vunakis Internal Protein in T2 and T4 Bacteriophages 497
Thomas ... ... Release and Stability of Large Subunit of DNA from T2 and T4 Bacteriophage 497

Viruses

Pulvertaft, Davies, Weiss & Wilkinson ... ... Tissue Cultures of Human Pathological Thyroids 497
Taverne, Marshall & Fulton ... Purification and Concentration of Viruses and Virus Soluble Antigens on Calcium Phosphate 498
Allen, Finkelstein & Sulkin ... Viral Inhibitors in Normal Animal Sera 498
Jadin, Giroud & Van Wymeersch Neorickettsiae Isolated from Patient with Subacute Sclerotic Leuco-encephalitis 498
Vieuchange, De Brion & Gruest Culture of Variola Virus in Tissue Culture 498
Hahon ... ... Cytopathogenicity and Propagation of Variola Virus in Tissue Culture 498
Sharp & Overman ... ... Enumeration of Vaccinia Virus Particles in Crude Extracts of Infected Tissues by Electron Microscopy 499
Wagner ... ... Immunological Relations between Vaccinia and Herpes Simplex Virus Infections in Mice 499
Wheeler ... ... Effects of Temperature upon Production of Herpes Simplex Virus in Tissue Culture 499
Webster ... ... Immunological Relations of Contagious Pustular Dermatitis Virus to Mammalian Pox Group 499
Drescher ... ... Determination of Haemagglutinins and Antibodies. III. Photometric Determination of Mumps Haemagglutinin and Inhibiting Antibody 499

Viruses—*cont.* PAGE

Wilcox, Wood, Oh, Everett & Evans ... Morphological and Functional Changes in Corneal Endothelium caused by Toxic Effects of Influenza and Newcastle Disease Viruses ... 500
Gostling ... Growth of Influenza "A" Virus in Cultured Cells of Embryo Mouse Lung ... 500
Hotchin, Cohen, Ruska & Ruska Electron Microscopical Aspects of Haemadsorption in Tissue Cultures infected with Influenza Virus ... 500
Nelson & Lewis ... Relationship between Swine and Asian Strains of Influenza A Virus ... 500
Takátsy & Barb ... New Inhibitor and Erythrocyte Receptor Substance for certain Asian Strains of Influenza Virus ... 500
Gorev ... Use of Broth Culture Filtrates of *Ps. fluorescens* for Destruction of Non-Specific Thermostable Influenza Virus Inhibitors in Human and Animal Sera ... 501
Styk, Rathová & Blaskovic ... Thermolability of Specific Haemagglutination Inhibiting Antibodies against the FE Influenza Virus and their Reactivation by Addition of Fresh Serum ... 501
Matheka & Armbruster ... Gradient Elution of Influenza Viruses from Anion Exchange Resin and Demonstration of Biological Difference between 3 Components obtained from PR8 Strain ... 501
Mills ... Effect of infecting Cells of De-Embryonated Egg with Influenza Viruses on Uptake of Glucose and Amino Acids 501
Gerber & Adams ... Development of Resistance of Influenza B Virus to Polysaccharides ... 502
Clarke & Tyrrell ... Neutralization of Influenza and other Viruses by Homologous Immune Serum. Studies in Roller Tube Tissue Cultures ... 502
Gendon ... Specific Antibody Content of Individual Protein Fractions of Anti-Influenza Horse Serum ... 502
Voluyskaya, Tovarnitsky & Byelikova ... Effect of Properdin System on Influenza Virus ... 502
Pereira ... Protein Factor responsible for Early Cytopathic Effect of Adenoviruses ... 502
Klöne & Oelrichs ... Cytopathogenicity of Type 3 Adenovirus in Tissue Cultures 502
Denny; Ginsberg; Boyer ... Intracellular Localization of Type 4 Adenovirus. I. Cellular Fractionation Studies. II. Cytological and Fluorescein-Labelled Antibody Studies ... 503
Pereira & Valentine ... Infectivity Titrations and Particle Counts of Adenovirus Type 5 ... 503
Chany, Daniel, Robbe-Fossat, Vialatte, Lépine & Lelong ... Isolation and Study of Unidentified Syncytial Virus associated with Acute Respiratory Infections in Infants ... 503
Hallauer ... Cultivation and Variation of Newcastle Disease Virus in Tissue Explantates of Human Origin ... 503
Murphy; Eylar; Schmidt; Syverton ... Absorption and Translocation of Mammalian Viruses by Plants. I. Survival of Mouse Encephalomyelitis and Poliomyelitis Viruses in Soil and Plant Root Environment. II. Recovery and Distribution of Viruses in Plants 504
Craig & Francis ... Contact Transmission of Poliomyelitis Virus among Monkeys 504
Mironova ... Characteristics of MK Strain of Poliomyelitis Virus Pathogenic for Monkeys, Cotton Rats and Infant Mice ... 504
Henneberg & Drescher ... Photometric Method for Determination of Virus and Antibody Concentrations by Erythrocyte Aggregation ... 504
Hare & Warren ... Complement-Fixing Antigens of Live and Inactivated Poliovirus. III. Evaluation of Sensitive Quantitative Procedure for Complement Fixation ... 505
Hummeler & Hamparian ... Complement-Fixing Antigens of Poliomyelitis. I. Demonstration of Type and Group Specific Antigens in Native and Heated Viral Preparations ... 505
Perkins & Yetts ... Stability of Potency of Poliomyelitis Vaccine ... 505
Ranzenhofer, Dizon, Lipton & Steigman ... Clinical Paralytic Poliomyelitis due to Coxsackie Virus Group A, Type 7 ... 506
Kovac, Kraus & Moritsch ... Effects of Electric Shock upon Virus Infections of CNS of Mouse ... 506
Hsiung ... Some Distinctive Biological Characteristics of ECHO-10 Virus ... 506
Lockart & Groman ... Factors influencing Interaction of Western Equine Encephalomyelitis and Selected Host Cells ... 506
Ho, Lin, Lou & Cheng ... Protective Action of Repeated Doses of Croton Oil in Japanese B Encephalitis Infection of Mice ... 506

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
Gresíková-Kohútová ... ... Persistence of Virus of Tick-Borne Encephalitis in Milk and Milk Products 507
Pierce, Pierce & Hull ... ... B Virus: its Current Significance 507
Gaidamovich ... ... Susceptibility of Domestic Rodents to Neurotropic Viruses 507

Immunity

Hobson, Porter & Whitby ... ... Immunological Response of Marrow treated X-Irradiated Rabbits to Bovine Gamma-Globulin 507
Nossal & Larkin ... ... Failure to induce Immunological Tolerance during Recovery from Irradiation 507
Askonas & Humphery ... ... Formation of Antibody by Isolated Perfused Lungs of Immunized Rabbits. Use of Amino Acids to study Dynamics of Antibody Secretion 507
White ... ... Antibody Production by Single Cells 508
Clémençon ... ... Relationship of Atypical Lymphocytes to Epidemic Hepatitis 508
Dutton, Dutton & George ... Effect of 8-Azaguanine on Antibody Synthesis *in vitro* ... 508
Wilson ... ... Agar Diffusion Precipitin Technique: Comparison of Simple and Double Diffusion Methods 509
Crowle ... ... Enhancement by Cadmium of Double-Diffusion Precipitin Reactions 509
Eisler ... ... Action of Adsorbent Substances on Antigens and Antibodies 509
Perkins ... ... Ready Reckoner for Calculation of Geometric Mean Antibody Titres 509
Turk ... ... Immune-Adherence with Soluble Antigens 509
Levy ... ... Complement Levels in Mammals 510
Cavallo & Cavallo ... ... New Method for Preparing Reagent for Titrating 4th Component of Complement 510
Cavallo ... ... Effect of Dilution on Thermal Inactivation of Complement 510
Zanussi, Taschini, Invernizzi, Ortolani & Mazzei ... ... Properdin System. Possible Antigenic Activity of Zymosan 510
DeWitt ... ... Differential Effect of Hog Gastric Mucin on Properdin and Host Resistance to Infection 511

BOOK REVIEWS

Douglas & Blomfield ... ... Children under 5 511
Sykes ... ... Disinfection and Sterilization 512

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.

treatment

suppression

eradication

‘daraclor’

BRAND

TABLETS

the **new** all-purpose antimalarial

Treatment	‘DARACLOR’ ensures swift and efficient control of the acute attack. In semi-immunes, a single dose is sufficient.
Suppression	‘DARACLOR’ is without question the most powerful suppressant of malaria now available. With ‘DARACLOR’, the development of parasite-resistance is extremely unlikely.
Eradication	By virtue of its combined schizonticidal, suppressant, and sporontocidal properties, ‘DARACLOR’ is unsurpassed as an adjuvant to vector control. Mass ‘single-dose’ distribution is suggested as a follow-up to spraying campaigns.

In eradication programmes, for protection of troops and labour forces, and for treatment and protection of the individual . . .

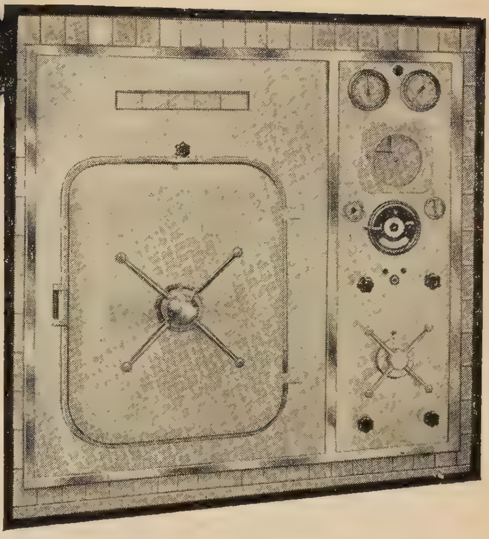
‘daraclor’

is the **complete** antimalarial

(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base.)

BURROUGHS WELLCOME & CO., LONDON
(The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON RD., LONDON, N.W.1

HIGH PRESSURE HIGH VACUUM



Hi Speed

STERILIZING

Manloves

"Hi-Speed" has emerged from exhaustive tests to lead the world in the field of rapid automatic sterilization of dressings and theatre linen.

MANLOVE, ALLIOTT & CO LIMITED
BLOOMSGROVE WORKS · NOTTINGHAM
Phone: NOTTM. 75127 (3 lines) GRAMS: MANLOVES, NOTTM. LONDON OFFICE. 41 & 42 PARLIAMENT ST. WESTMINSTER S.W.1. Phone: WHITEHALL 5931-2

BACK ISSUES OF THE

Tropical Diseases Bulletin

AND

Bulletin of Hygiene

WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

Silence is Golden!

TRUVOX

FLOOR POLISHER/ SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:
TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- **Public Health**
- **Social Services**
  - **Maternal and Child Health**
  - **Health of Nurses, Students and Hospital Staffs**
  - **Care of Old Persons and the Chronically Ill**
- **Vital Statistics and Epidemiology**
- **Communicable Diseases**
  - **(except Tropical Diseases)**
- **Diseases due to Fungi**
- **Rheumatic Diseases**
- **Heart Disease**
- **Cancer**
- **Miscellaneous Diseases**
- **Dental Hygiene**
- **Mental Hygiene**
- **Occupational Hygiene**
- **Occupational Psychology**
- **Atmospheric Pollution**
- **Physiology as Applied to Hygiene**
- **Hygiene of Buildings**
- **Sanitation**
- **Port, Ship and Aviation Hygiene**
- **Infestation and Disinfestation**
- **Food and Nutrition**
- **Bacteriology and Immunity**

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- **Tropical Bacterial Diseases**
  - **(Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)**
- **Helminthic Diseases**
- **Tropical Deficiency Diseases**
- **Other conditions related to warm climates**
- **Bacteriological, Entomological, Protozoological papers related to these diseases**

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE
SILVER ... ... Beyond General Practice: the Health Team 513
WORLD HEALTH ORGANIZATION. TECHNICAL REPORT SER. No. 156 Expert Committee on Training of Health Personnel in Health Education of Public. Report 513

MATERNAL AND CHILD HEALTH

MEDALIE ... ... Cyanosis in Infancy. Outbreak of Methaemoglobinaemia ... 514
HORNER & HICKLING ... ... Lead Poisoning of Unusual Origin in 2 Children 514

HEALTH OF NURSES, STUDENTS AND HOSPITAL STAFFS

BECKETT & TUPPER ... ... Responsibility of University Administration for Health of Students and Faculty 514

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

PERROW ... ... Research in Home Care Programme 515

VITAL STATISTICS AND EPIDEMIOLOGY

MAGDELAINE ... ... Survey of Hospital Patients 515
DREYER & FRANDSEN ... ... Medico-Statistical Information from Denmark for 1956 and 1957 516
FRISK, WERKÖ, HOLMGREN & STRÖM Stockholm's City Health Survey 1954 516
EDWARDS, MCKEOWN & WHITFIELD Association between Smoking and Disease in Men over 60 516
CANDIOTTI & MOINE ... ... Principal Causes of Death in France, 1955–7 517
WELLS, GREENBERG & DONNELLY ... N. Carolina Foetal and Neo-natal Death Study 517

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the

BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1

or through any bookseller.

Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

COMMUNICABLE DISEASES

Infective Diseases

		PAGE
Williams	Staphylococcal Infection in British Hospitals	518
Volovich, Pedenko, Smerenskaia Golodiuk & Kaluzhskaia	Epidemiological Significance of Carriers of Avirulent Diphtheria Bacilli	518
Flekser & Tsirlina	Preparations used to treat Carrier State in Patients convalescing after Diphtheria	518
Baldovin *et al.*	Scarlet Fever. Role of Tonsillitis and Social Environment Factors in maintaining and developing Scarlet Fever Foci	518
Vasojević, Kostić-Vujačić, Popović & Debeljković	Review of Epidemiology and Prophylaxis of Scarlet Fever in Children and Adolescents in last 5 Years	519
Mogabgab & Pelon	Pharyngitis due to Tetracycline-Resistant Group A, Type 12 Streptococci	519
Donchev, Stoianova, Grigorova, Balkanska, Nenkova & Dumanova	Parapertussis in Kindergartens and Nurseries in Sofia	519
Lešničar	Treatment of Pertussis with Vitamin K and Isoniazid	519
McCarthy; Downie; Bradley	Antibody Response in Man after Infection with Viruses of Pox Group. II. Antibody Response after Vaccination. III. Antibody Response in Smallpox	519, 520
Tadžer	Haemorrhagic Disturbance in Rubella	520
Murray & McAlister	Serological Investigation of University Students after 1957 Influenza Epidemic in N. Ireland	520
Schwarz	Influenza Epidemic in Ruhr, 1957	520
Blumenfeld; Kilbourne; Louria; Rogers; Ellis	Influenza Pandemic of 1957–8. I. Intra-Hospital Epidemic; Vaccination Efficacy. II. Pulmonary Complications of Influenza. III. Isolation of Influenza A Viruses from Influenza Patients with Pulmonary Complications	521
Watrous, McAndrew & Robbins	Asian Type A Influenza. Results of Industrial Immunization Programme	521
Sinclaire, Flynn, Saunders, Ernest & Ericson	Inoculation against Asian Influenza	521
Van Der Veen & Van Der Ploeg	Epidemic of Pharyngoconjunctival Fever	522
Culver, Lennette & Green	Serologic Reactions in Adenovirus Disease. I. Delayed Complement-Fixing Antibody Response	522
Gaisford	Drug Treatment of Infants and Children suffering from Pneumonia	522
Fusaroli	Epidemics of Benign Lymphocytic Meningitis in Forlì Area	522
Melén, Wrange & Olin	Antibodies to Poliomyelitis in Schoolchildren in Stockholm	523
Haseeb	Poliomyelitis in Sudan	523
Gerloff, Larson & Glesne	Naturally Occurring Poliomyelitis Antibody in Hamilton, Montana	523
Thieffry, Martin & Arthuis	Respiratory Poliomyelitis; 170 Patients Treated at Sick Children's Hospital, Paris, 1950–7	523
J. Hyg., Epidemiol., Microbiol. & Immunol.	Papers on Poliomyelitis and Vaccination	524
Vivell & Lips	Complement-Fixation Tests with ECHO-9 Virus	524
Dowling & Webb	Preliminary Report on Encephalitic Type of Illnesses in Singapore	525
Ignjatović	Typhoid Fever in Kragujevac, 1926–56	525
Gavrila, Comes, Muresan, Buciu, Igna, Cucu & Serban	Behaviour of Titre of Anti-H and Anti-O Agglutinins in Typhoid treated with Chloramphenicol	525
Jellard, Jolly & Brown	Outbreak of *Salm. bovis-morbificans* Infection in Children's Ward	525
Altshuler & Hernandez	Outbreak of Water-Borne Dysentery	526
Becsei	Seasonal Factors in Dysentery	526
Hugh-Jones & Ross	Epidemics of Gastro-Enteritis associated with *E. coli* O119 Infection	526

Tuberculosis

Griep	Age of Infection and Incidence of Disease in Tuberculosis	527
Camphyn & Frebutte	Tuberculous Meningitis, Pleurisy, Polyserositis and Polyadenitis in Negro	527
Deeny	National Tuberculosis Survey of Ceylon	527
Butzengeiger & Geissen	Tuberculin Sensitivity of Healthy and of Tuberculous Persons	528
Arakawa, Oota & Sato	Erythrocytes sensitized with Tuberculin-Polysaccharide in Circulating Blood of Children: Diagnostic Application for Tuberculosis in Infancy and Childhood	529
Royal Netherlands Tuberculosis Ass.	Pulmonary Tuberculosis and Asthmatic Bronchitis	529
Treip & Meyers	Fatal Tuberculosis in General Hospital	529

BUREAU OF HYGIENE AND TROPICAL DISEASES

Occupational Hygiene Abstracts

At the request of the Joint Committee of the Institution of Mining Engineers and the Institution of Mining and Metallurgy, the Bureau of Hygiene and Tropical Diseases issues in reprint form the sections of the *Bulletin of Hygiene* which contain abstracts of papers relating to Occupational Hygiene, Atmospheric Pollution, Occupational Psychology, Physiology as Applied to Hygiene, and the Hygiene of Buildings.

As a large part of the *Bulletin of Hygiene* is purely medical in character the Joint Committee, who are mainly interested in the problems of dust, heat and humidity in mines, asked the Bureau to issue separate reprints of these particular sections, so that they may be available to the large body of non-medical men who are directly concerned with the well-being and efficiency of mine workers and of workers in other industries in which there are health problems of a similar nature.

The price of the separate abstracts is 3s. per issue, or 30s. for a complete set of the 12 monthly issues each year, including index. The original pagination of the *Bulletin of Hygiene* is retained in the abstracts, together with the appropriate section of the table of contents. The first issue, entitled *Bulletin of Hygiene Reprints*, began with the *Bulletin of Hygiene* for January, 1951 (Vol. 26, No. 1). From January, 1958, the title has been changed to *Occupational Hygiene Abstracts*.

Applications for the *Occupational Hygiene Abstracts* should be addressed to the Bureau of Hygiene and Tropical Diseases, Keppel Street, London, W.C.1, together with a remittance of 30s.

COMMUNICABLE DISEASES—*cont.*

Tuberculosis—*cont.*

PAGE

Lauckner ... Treatment of Tuberculosis in Tropics ... 530

Smith & Matsaniotis ... Treatment of Tuberculous Pleural Effusions with particular reference to Adrenal Corticosteroids ... 530

Geddes ... Group Radiography in Tuberculosis Control ... 530

Dubos ... Progress toward Standardization of BCG Vaccine ... 530

Guye ... BCG Vaccination by Scarification ... 531

Cerf ... BCG Vaccination without Preliminary Tuberculin Testing 531

Venereal Diseases

Djang, Kilcrease, McBreen & Leland ... Principles and Practice of Venereal Disease Control; Programme Activities in New Mexico ... 532

Cavaillon ... Syphilis and Humanity ... 532

Miller, Boak & Carpenter ... Sensitivity of *Trep. pallidum* Immobilization Test. Function of Number of Spirochaetes in Antigen ... 533

Gram ... Spirochaetal Agglutination in Cerebrospinal Fluid ... 533

Collard & Evans ... Smallpox as Cause of False Positive Reactions to Kahn Test 533

King ... Drugs in Treatment of Syphilis ... 533

Knight ... Results of Treatment of Gonorrhoea in Birmingham Clinic 534

Oates ... Diagnosis of Chronic Prostatitis ... 534

Miles ... Rectal Lymphogranuloma Venereum ... 534

Marmell ... Donovanosis of Anus in Male ... 534

Catterall ... Chronic Genital Infection in Male Patients with Uveitus ... 535

Other Communicable Diseases

Riis ... Tetanus and Chronic Ulcers of Legs ... 535

Fourrier & Cabanel ... Tetanus in Algeria ... 535

Velasco-Joven, Tan & De Jesus ... Erythromycin as Adjunct in Treatment of Tetanus ... 535

Collipp & Koch ... Cat-Scratch Fever associated with Osteolytic Lesion ... 535

Zoonoses

Awad ... Serum Protein Electrophoresis in Brucellosis ... 536

Lostia & Neri ... Brucellosis in Parma ... 536

Vanini & Bompani ... Erythromycin Activity on *Brucella in vivo* and *in vitro* ... 536

Vershilova & Golubeva ... Dermal Revaccination against Brucellosis among Workers in Meat Combines and in Cattle-Breeding Stations ... 537

Held, Bauer & West ... Effect of eradicating Brucellosis among Cattle on Incidence among Human-Beings ... 537

Bence & Miller ... Leptospirosis in Hospital Patients and in Packing House Workers ... 537

Van Riel & Gaspart ... First Infection of Human-Beings with *L. grippotyphosa* in Belgium ... 538

Pokorný, Lehký, Sebek & Vosta New Animal Carriers of Leptospira in Bohemia ... 538

McKeever, Gorman, Galton & Hall ... Raccoon, *Procyon lotor*, Natural Host of *L. autumnalis* ... 538

McKeever, Gorman, Chapman, Galton & Powers ... Leptospirosis in Wild Mammals from S.W. Georgia with Report of New Hosts for 6 Serotypes of Leptospires ... 538

Russell ... Treatment of Leptospirosis with Oxytetracycline ... 539

DISEASES DUE TO FUNGI

Main ... Ringworm contracted from Cattle ... 539

Cremer ... Incidence of Tinea Pedis in Amsterdam ... 539

Sands, Schulz & Aromstam ... Indeterminate Pulmonary Infiltration: Report on Chronic Granulomatous Disease of Lung in 23 Patients ... 540

Seides, Boies & Malawista ... Histoplasmin, Tuberculin and Coccidioidin Skin Sensitivity in Liberian Aborigines ... 540

Louria, Feder, Mitchell & Emmons Influence of Fungus Strain and Lapse of Time in Experimental Histoplasmosis and of Volume of Inoculum in Cryptococcosis upon Recovery of Fungi ... 540

CANCER

Lindsey; Smyth ... Tobacco Smoke ... 540

Korteweg ... Mortality from Tobacco ... 541

DENTAL HYGIENE

Garcelon ... 5-Year Experience with Fluoridation in Maine ... 541

OCCUPATIONAL HYGIENE

PAGE
Meiklejohn ... I. Industrial Health. II. Outbreaks of Fever in Cotton Mills at Radcliffe, 1784 ... 542
Murray ... Quarry Bank Mill. I. Story of Mill. II. Medical Service 542
Tant & Bennett ... Growth of Aerobic Bacteria in Metal-Cutting Fluids ... 542
Perria ... Small Outbreak of Epidemic Kerato-Conjunctivitis ... 543
Brehm & Holzmann ... Delayed Injury by Pneumatic Tools ... 543
Ministry of Power. Safety in Mines Research Establishment Thirty-Sixth Annual Report ... 543
Arch. Malad. Professionnelles ... Société de Médécine du Travail de la Région Toulousaine: Conference on Silicosis and Allied Diseases ... 544
Grümberg ... Is Silicosis a "Collagen Disease"? ... 545
Kobrle & Chvapil ... Changes in Collagen Proteins in Course of Aging and in Experimental Silicosis ... 545
Norviit & Di Biasi ... Lymph Node Biopsies in Silicosis ... 546
Gross ... Perivascular Spaces in Lung ... 546
Gross, Westrick & McNerney ... Experimental Silicosis. Morphogenesis of Silicotic Nodule 546
Löblich, Koch, Soffge & Nordmann ... Absorption of Deposited Dust. Fine Dusts (Calcite, Siderite, Talc and Rutile) ... 546
Sauer, Laughland & Davidson ... Silica Metabolism in Guineapigs ... 547
Velican, Latis, Popa, Popa & Steinbach ... Investigations concerning Pre-Radiological Stage of Silicosis 547
Ko ... Vital Capacity and Chest Volume Index among Gold-Miners in Formosa ... 547
Chivers ... Respiratory Function and Disease among Workers in Alkaline Dusts ... 548
Dowling, Davis, Charsha & Linch Lead-in-Air Analyzer: Specialized Air Sampling and Analysis Kit ... 548
Hickling ... Vanadium Poisoning ... 548
Sunderman, West & Kincaid ... Toxicity Study of Iron Pentacarbonyl ... 549
Browning ... Toxic Solvents: Review ... 549
Shiels ... Poisoning due to Use of Carbon Tetrachloride ... 549
Torkelson, Oyen, McCollister & Rowe ... Toxicity of 1,1,1-Trichloroethane as determined on Laboratory Animals and Human Subjects ... 550
Bardoděj & Krivucová ... Value and Use of Exposure Test V. Determination of Trichlorethyl Alcohol as Exposure Test on Workers with Trichlorethylene ... 550
Pang, Hashimoto & Murakami ... Effect of Glutathione on CO-Poisoning ... 550
Gage ... Toxicity of Epichlorhydrin Vapour ... 551
Jacobson, Christensen, DeArmon & Oberst ... Studies of Chronic Exposures of Dogs to GB (Isopropyl Methylphosphonofluoridate) Vapour ... 551
Méndez-Cashion, Cáceres De Costas, Nazario & Ortiz ... Poisoning by Organic Phosphorus Insecticides ... 551
Bourret, Tolot, Pollet & Genevois ... Occupational Dermatoses Produced by Formaldehyde and its Industrial Derivatives ... 552
Huriez ... Cutaneous Tests in Industrial Allergy ... 552
Cember, Watson & Spritzer ... Bronchogenic Carcinoma from Radio-active Cerium Fluoride 552
Buckland ... Interpretation of Regulations governing Shipment of Radioactive Material ... 552

SANITATION

Water and Swimming Baths

Kraus ... Hydro-mechanical Sampling Apparatus for Bacteriological Examination of Water ... 553
McCarthy, Thomas & Delaney ... Evaluation of Reliability of Coliform Density Tests ... 553
Levin, Harrison, Hess, Heim & Stauss ... Rapid Radio-active Test for Coliform Organisms ... 553
Flynn, Andreoli & Guerrera ... Synthetic Detergents in Ground Water ... 554

INFESTATION AND DISINFESTATION

Watson ... Scabies ... 554

FOOD AND NUTRITION

Foodstuffs

Public Health Lab. Service ... Search for Organisms of Salmonella Group in Wheat and Flour ... 555
Public Health Lab. Service ... Bacteriology of Flour: possible Role in Spreading Enteric Disease ... 555

FOOD AND NUTRITION—*cont.*

Foodstuffs—*cont.*

PAGE

Denny; Bohrer; Perkins; Townsend; Pratt; Wheaton ... ... Destruction of *Cl. botulinum* by Ionizing Radiation. I. In Neutral Phosphate at Room and Freezing Temperatures. II. Peas, Chicken Soup and Pork in Frozen State 555

Food Poisoning

Balice ... ... Salmonella Food Poisoning in Osimo, Italy 555

Greenberg, Silliker, Nank & Schmidt ... ... Toxin Production and Organoleptic Breakdown in Vacuum Packaged Fresh Meats inoculated with *Cl. botulinum* ... 556

BACTERIOLOGY AND IMMUNITY

General

Benedict, Corman, Sharpe, Kemp, Hall & Jackson ... ... Preservation of Micro-organisms by Freeze-Drying. I. Cell Supernatant, Naylor-Smith Solution and Salts of Various Acids as Stabilizers for *Serratia marcescens* 556

Maister, Pfeifer, Bogart & Heger Survival during Storage of *Serratia marcescens* dried by Continuous Vacuum Sublimation 557

Habeeb ... ... Bacteriological Media; Examination of Bacto-Casitone ... 557

Meynell & Meynell ... ... Growth of Micro-organisms *in vivo*: Relation between Dose and Latent Period 557

Kraft ... ... Control and Natural History of Epidemic Diarrhoea in Infant Mice 557

Murray, Denton, Stevenson & Diena ... ... Toxin-Inactivating Substance from *Penicillium cyaneofulvum* 557

Faninger & Miškov ... ... Bacterial Flora of Staff in Hospital at Zrenjanin. I. ... 558

Ridley ... ... Perineal Carriage of *Staph. aureus* 558

Knights ... ... Air Hygiene of Obstetrical Unit Nurseries 558

Walter, Rubenstein, Kundsin & & Shilkret ... ... Bacteriology of Bedside Carafe 558

Bacteriostatic and Bactericidal Substances; Disinfection

Walter & Marget ... ... Micro-Method for estimating Blood Concentration of Antibiotics in Common Use. Utilization of Observed Inhibitory Effect of Haemoglobin on Bacteria 559

Olberg ... ... Influence of Non-ionic Wetting-Agent on some commonly Used Antibiotics 559

Bechtle & Scherr ... ... New Agar for *in vitro* Antimicrobial Sensitivity Testing ... 559

Stapley ... ... Cross-Resistance Studies and Antibiotic Identification ... 560

Rocha & Guze ... ... *In vitro* Sensitivities of Gram-Negative Bacteria to Combinations of Antibiotics. Use of Antibiotic-Strip Replica-Plating Technique 560

Fehr ... ... Problem of Drug Resistant Cocci in Surgery 560

Barber, Csillag & Medway ... Staphylococcal Infection resistant to Chloramphenicol, Erythromycin and Novobiocin. Effect of Antibiotic Combinations on Emergence of Resistant Strains 560

Hsie, Nusser, Epstein, Van Maren & Ozog ... ... Staphylococcal Resistance to Ristocetin, Oleandomycin and Novobiocin 561

Davis, Ramsay & Mann ... ... Resistant Staphylococcal Puerperal Septicaemia susceptible to Vancomycin 561

Fürész, Zangaglia & Scotti ... Effect of Fixed Combinations of Antibiotics on Staphylococci *in vitro* 561

Sleigh ... ... Difficulties in Reporting Penicillin Sensitivity of Staphylococci 561

Watson, Joubert & Bennett ... Penicillin as Antigen 562

Olitzki & Olitzki ... ... Quantitative Determination of Streptomycin in Organs after Subcutaneous and Intraperitoneal Injections with Aid of Streptomycin-Dependent *Vibrio comma* 562

Opara ... ... Effect of Chloromycetin on Transformations of Streptomycin Resistance in Pneumococci 562

Dub, Rathová & Rath ... ... Report on 800 Patients treated with Chloramphenicol without Serious Complications 562

Blass ... ... Antibiotic Sigmamycin; Action on Intestinal Flora 562

Koch & Asay ... ... Oleandomycin, Laboratory and Clinical Evaluation 563

Fairbrother & Williams ... ... Activity of Ristocetin and Framycetin; 2 New Antibiotics 563

Martin ... ... Technique for Studying Action of Antiseptics on Bacteria in Subcutaneous Tissues, with special reference to Chlorhexidine 563

Sprössig ... ... Testing of Virus-Inactivating Properties of Disinfectants in Embryonated Eggs 563

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances; Disinfection—*cont.*

		PAGE
McLeod & McLeod	Oscillation of Intraleucocytic Granules as Criterion of Survival of Leucocyte and Potency of Cytotoxic Agents ...	564

Individual Bacteria

Falkow	Activity of Lysine Decarboxylase as Aid in Identification of Salmonellae and Shigellae	564
McKinney; Langley; Tomlinson; Campbell	Survival of *Salm. typhosa* during Anaerobic Digestion. I. Experimental Methods and High-Rate Digester Studies. II. Mechanism of Survival	564
Muschel, Carey & Baron	Formation of Bacterial Protoplasts by Serum Components	565
Spicer & Datta	Reversion of Transduced Antigenic Characters in *Salm. typhi-murium*	565
Furness...	Interaction between *Salm. typhi-murium* and Phagocytic Cells in Cell Culture	565
Schewe	Effects of Modified Host Metabolism and Altered Defence Mechanisms on Survival Time and Pathogen Counts in Tissues and Total Body of Mice infected intravenously with *Salm. typhi-murium*	566
Kauffmann	Biochemical Behaviour of New Salmonella Types	566
Van Oye, Lucasse, Herin & Beaufort	3 New Salmonella Serotypes from Belgian Congo: Salm. Inganda, Salm. Iseko and Salm. Bolombo	566
Van Oye, Vassiliadis, Janssen & Van Looy	New Salmonella Isolated in Belgian Congo: Salm. Bukavu	566
Levi & Zdravković	Detection of Shigella on Different Vehicles which spread Bacillary Dysentery and Use of Comparative Method for Isolation of Bacteria of Intestinal Group from Sewage and River Water	567
Erlandson & Mackey	Nutrition of Shigella: Growth of *Sh. flexneri* in Simple Chemically Defined Medium	567
Okada, Sakaki & Karato	Antigenic Variations in *Sh. flexneri* 1b, 3 and 4b	567
Erlandson, Lampley & Floyd ...	Experimental *Sh. flexneri* Infections in Chick Embryos ...	567
Serény	Aetiotropic Treatment of Experimental Shigellosis	567
Ando, Tadokoro & Yamashita ...	Dysentery Chrome Vaccine. Methods of Preparation and Field Trials	568
Kelen	Production of OB Diagnostic Antisera from Motile *E. coli* Strains	568
Sarkar, Choudhury & Tribedi ...	*Alcaligenes faecalis*	568
Shneerson	Toxigenicity of Newly Isolated Strains of Diphtheria Bacillus by Precipitation of Toxin in Phosphate-Peptone Agar ...	569
Gurevitch, Weber & Izak	Syrian Hamster as Experimental Animal in Diagnosis of Tuberculosis	569
Lebek	Demonstration of Different Optimal Oxygen Concentrations for Human and Bovine *Myco. tuberculosis*	570
Mankiewicz	Agar Diffusion Precipitation and Complement-Fixation Tests applied to Study of Antigenic Relationships between Chromogenic Acid-Fast Bacteria and *Myco. tuberculosis*	570
Takahashi & Ono	Modification by Heating of Ability of Tuberculo-Polysaccharides to Sensitize Red Cells	570
Arima, Yamamoto, Morikawa & Takahashi	Delayed Development of Tuberculin Allergy in Guineapigs after Intravenous Inoculation of BCG	570
Signorini, Massone & Grilli ...	Protective Action of Petragnani's Complete Anatuberculin: Comparisons with BCG	571
Crowle	Immunizing Constituents of Tubercle Bacillus	571
Constantinesco, Hornet, Birzu, Zavate, Pencea & Rusan ...	Role of Killed Tubercle Bacilli in Pathogenesis of "Allergic" Encephalomyelitis induced by Brain Extract plus Freund's Adjuvants	572
Suter & Strain	Infectivity and Immunogenicity of *Myco. X* in Mice ...	572
Colwell	Antimycobacterial Activity of Extracts of Rat Peritoneal Cells	573
Kosmodamiansky & Klimachevskaya	Action of Soluble Saluzid on Tubercle Bacilli	573
Oeding & Williams	Type Classification of *Staph. aureus*: Comparison of Phage-Typing with Serological Typing	573
Mai	New Method for Demonstrating Bacterial Fibrinolysis ...	573
Delmotte	Bacterial Lipolysis Determined by Sierra's Method with Special Reference to *Staph. aureus*	573
Jackson; Little; Mayman	Staphylococcal Toxins. II. Factors affecting Haemolysis by δ-Lysin. III. Partial Purification and some Properties of δ-Lysin. IV. Factors affecting Haemolysis by β-Lysin	574

Individual Bacteria—*cont.*

		PAGE
Kienitz & Preuner	Demonstration of Staphylococcus Enterotoxin. 2. Effect of Enterotoxin-Producing Staphylococci on Chick Embryos	574
Pavlov, Akimova & Pomiankevich	Purified Adsorbed Scarlet Fever Toxin. I. Production and Purification of High Titre Scarlet Fever Toxin	574
Vvedenskaia	Determination of M Antibodies in Streptococcal Antisera ...	574
McCullough & Beal	Biological Stability of Genus Brucella	575
Renoux	Concept of Species in *Brucella* Genus	575
Elberg & Meyer	Caprine Immunization against Brucellosis. Summary of Experiments on Isolation, Properties and Behaviour of Vaccine Strains	575
Tauber & Garson	Effect of Sonic Energy, Ultracentrifugation and Phenol on *Neisseria gonorrhoeae* Endotoxin	576
Borel, Bentejac & Durel	Lyophilized Survival Medium for *Trep. pallidum* Immobilization Test	576
Fischer, Powers & Galton ...	Techniques for Isolation of Leptospires. I. Suitability of 1–2-day-old Chicks as compared to Hamsters for Isolation of Various Leptospiral Serotypes	576
Pike & Schulze	Serologic Variants of Leptospira Types resulting from Growth in Immune Serum	577
Howarth & Reina-Guerra ...	Experimental Avian Leptospirosis	577
Bauer & Morse	Variation and Haemolysin Production in relation to Virulence of *L. pomona*	577
Stoenner, Grimes, Thrailkill & Davis	Elimination of *L. ballum* from Swiss Albino Mice by use of Chlortetracycline Hydrochloride	578
Vorob'ev	Therapeutic Action of Various Preparations of Tetanus Toxoid in relation to Method of Injection	578
Wagenaar, Dack & Murrell ...	Purified Type A *Cl. botulinum* Toxin subjected to Ultracentrifugation and Irradiation	578
Beerens, Guillaume & Petit ...	Proprionic Fermentation of L (-)threonin by 45 Strains of Anaerobic Non-Sporing Gram-Negative Bacteria	579
Bennett, Peterson & Williams ...	Penicillin Sensitivity as compared with Nucleic Acid Phosphorus Content of Virulent and Avirulent Strains of *B. anthracis* and *B. cereus*	579
Epstein	Biochemistry and Antibiotic Sensitivity of Klebsiellae ...	579
Osterrieth	Biochemical Properties of Klebsiella	580
Hartwigk	Colonies of *L. monocytogenes* in S-form compared with those of Various Bacteria Resembling *Listeria*	580

Fungi

Donald	Tinea Capitis in S. Australia	580
Duncan	Tropical African Histoplasmosis	581
Wang, Schwarz & Baum	Large Forms of *Histoplasma*	581
Schmidt & Thorp	Effect of Chemotherapeutic Agents upon Growth of *Cryptococcus neoformans*	581

Bacteriophages

Fildes & Kay	Function of Tryptophan in Adsorption of Bacteriophage ...	581
Salles	Adsorption of Bacteriophage T1 on Heat Inactivated *E. coli*	582
Francq, Eyquem & Guyot-Jeannin	Inhibitory Capacity of Serum towards T2r + Phage and Properdin	582
Mutsaars	Multiplicity Reactivation of Bacteriophage inactivated by Physical and Chemical Agents	582
Drozhevkina	*Brucella* Bacteriophage and Prospects of its Utilization ...	582
Mamatsashvili	Some Properties of *Brucella* Bacteriophage	582
Mach	Morphology and Host Specificity of Actinophages	583

Viruses

Cooper, Burt & Wilson	Critical Effect of Oxygen Tension on Rate of Growth of Animal Cells in Continuous Suspended Culture	583
Hoang, Rohde & Kotschate ...	Use of Papain for Preparation of Monolayer Tissue Cultures	583
Rothblat & Morton	Detection and Possible Source of Contaminating PPLO in Cultures of Tissue Cells	583
Colón & Moulder	Folic Acid in Purified Preparations of Members of Psittacosis Group of Micro-Organisms	584
Stewart	Effect of Cortisone on Lethality of Psittacosis Virus for Chick Embryo	584
Moulder, Ruda & Greenland ...	Separation of Mixtures of 2 Drug-Resistant Strains of Feline Penumonitis Virus by limiting Dilution Passage in Chick Embryo Yolk Sac	584
Nishmi & Bernkopf	Toxic Effect of Vaccinia Virus on Leucocytes *in vitro* ...	584

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
Bukrinskaya ... ... Type D Influenza Virus Cultivation in Human Embryonic Tissues 584
Fabiyi; Lief; Henle; Ostapiak ... Antigenic Analysis of Influenza Viruses by Complement Fixation. II. Production of Antisera to Strain-Specific V Antigens in Guineapigs. III. Rapid Identification of New Isolates 585
Culver, Lennette, Navarre & Donahue ... ... Recall Phenomenon in Antibody Response to Influenza Vaccines 585
Bogert & Corbett ... ... Quantitative Effects of Cations on Erythrocyte Agglutination by Influenza Virus Vaccine 585
Kilbourne ... ... Inhibition of Influenza Virus Multiplication with Glucose Antimetabolite 585
Sutton, Clarke & Tyrrell ... Newly Recognized Myxoviruses in Europe 585
Oddo ... ... Course of Development of Infection of HeLa Cells with Poliomyelitis Virus as Studied by Morphological Changes and Demonstration of Virus Antigen by Fluorescent Antibody 586
Kanda & Melnick ... ... *In vitro* Differentiation of Virulent and Attenuated Polioviruses by their Growth Characteristics on MS Cells ... 586
Gard ... ... Use of Guineapigs in Tests for Immunogenic Capacity of Poliovirus Preparations 586
Gard, Johnson, Lycke, Melén, Olin, Salenstedt & Wrange ... Potency of Inactivated Poliovirus Vaccines. Correlation between Antigenic Extinction Limit Titres in Guineapigs and Results obtained in Man 587
De Somer, De Maeyer & Prinzie 4-Point Assay for testing Poliovaccine 587
Kasel, Cramblett & Utz ... ... Agents resembling Enteroviruses isolated in HeLa Cell Cultures from Faecal Specimens 587
Poljak & Bárdoš ... ... Laboratory Infection with Lymphocytic Choriomeningitis Virus 587
Primavesi & Stöcker ... ... Detection of Hepatitis Virus in Experiments in Mice ... 587
Bech ... ... Canine Hepatitis Virus: Relationship with Human Hepatitis 588
Lee, Hinz & Scherer ... ... Porcine Kidney Cell Cultures for Propagation and Assay of Japanese Encephalitis Virus 588
Okuno, Okuma, Nomura & Kitaoka Plate Complement-Fixation Test with Japanese B Encephalitis and Polioviruses 588
Aitken, Downs & Anderson ... Parasitic *Philornis* Flies as possible Sources of Abor Virus Infections 588
Thomas, Eklund & Rush ... ... Susceptibility of Garter Snakes to Western Equine Encephalomyelitis Virus 588
Von Zeipel & Svedmyr ... ... Growth of Viruses of Russian Spring-Summer Louping-Ill Group in Tissue Culture 589
De Ruyck & Lépine ... ... Pathogenic Effects of Choriotropic Virus in Tissue Culture 589

Immunity

Steigman & Lipton ... ... Neonatal Immunity. II. Poliocidal Effects of Human Amniotic Fluids 589
Becker ... ... Mechanism of Complement Action. IV. Properties of Activated First Component of Guineapig Complement 589
Wedgwood ... ... Nature of Properdin System 590
Humphrey & Mota ... ... Mechanism of Anaphylaxis: Failure of Antibodies from Certain Species to Sensitize Guineapigs in Direct and Reversed Passive Anaphylaxis. Specificity of Antigen-Induced Mast Cell Damage in Anaphylaxis in Guineapig 590

BOOK REVIEWS

Commission on Chronic Illness ... Chronic Illness in U.S.A. Vol. IV. Chronic Illness in Large City 591
Kamal ... ... Epidemiology of Communicable Diseases 591
International Committee on Bacteriological Nomenclature ... International Code of Nomenclature of Bacteria and Viruses 592
Walker ... ... Australia in War 1939–45. Vol. III. The Island Campaigns 593
Wiesinger ... ... Man and his Environment. I. Man and Altitude 594
Hargreaves ... ... Psychiatry and Public Health 594
Segretain, Drouhet & Mariat ... Laboratory Diagnosis in Medical Mycology 595

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.

treatment
suppression
eradication

'daraclor'
BRAND
TABLETS

the **new** all-purpose antimalarial

Treatment	'DARACLOR' ensures swift and efficient control of the acute attack. In semi-immunes, a single dose is sufficient.
Suppression	'DARACLOR' is without question the most powerful suppressant of malaria now available. With 'DARACLOR', the development of parasite-resistance is extremely unlikely.
Eradication	By virtue of its combined schizonticidal, suppressant, and sporontocidal properties, 'DARACLOR' is unsurpassed as an adjuvant to vector control. Mass 'single-dose' distribution is suggested as a follow-up to spraying campaigns.

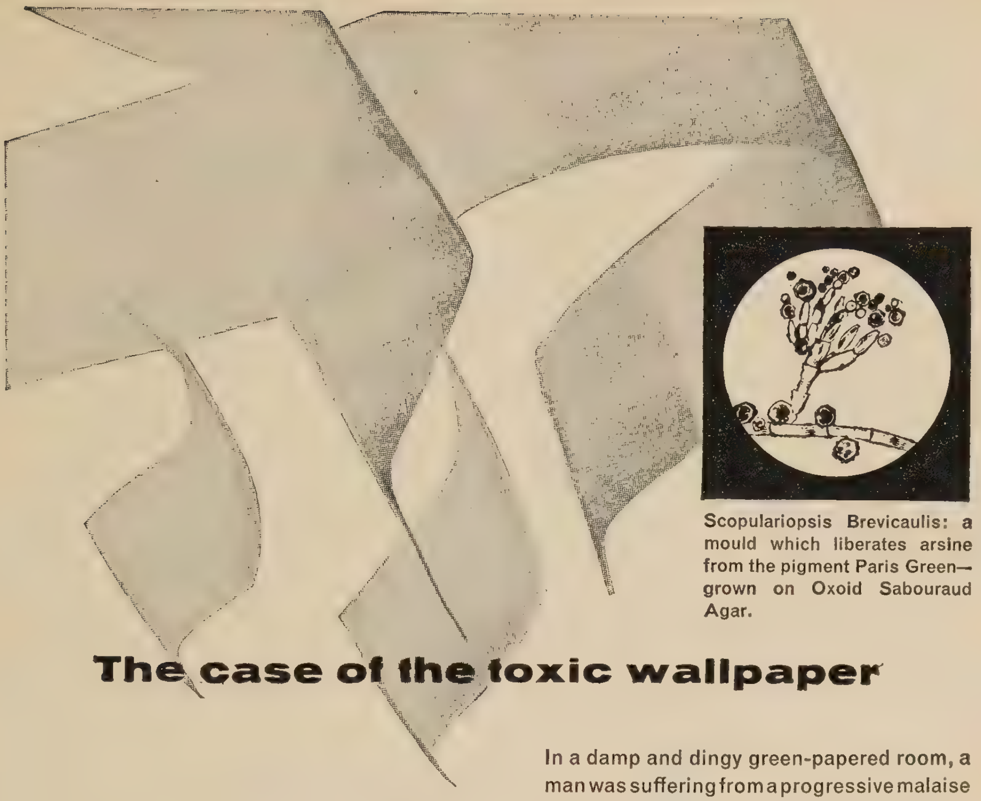
In eradication programmes, for protection of troops and labour forces, and for treatment and protection of the individual . . .

'daraclor'

is the **complete** antimalarial

(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base.)

BURROUGHS WELLCOME & CO., LONDON
(The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON RD., LONDON, N.W.1



Scopulariopsis Brevicaulis: a mould which liberates arsine from the pigment Paris Green—grown on Oxoid Sabouraud Agar.

The case of the toxic wallpaper

In a damp and dingy green-papered room, a man was suffering from a progressive malaise and little knew that he was being slowly poisoned. Murder?—No. In fact, arsenical gas was being liberated from the green pigment in the paper by the action of a mould growing on it.

Although this particular instance is not taken from our files, it serves to illustrate the diversity of problems which face the Bacteriologist. It is with such problems—as well as in the everyday routine work—that Oxoid Culture Media prove so dependable and reliable and, of course, so convenient.

FOR PROGRESSIVE LABORATORIES **OXOID** REGD. TRADE MARK **CULTURE MEDIA**

The use of Oxoid Culture Media ensures constant quality and uniformity in your laboratory technique. Absolutely reliable, quick, convenient and economical, Oxoid Culture Media are available in tablet or granular form. Full details from:

OXOID DIVISION OF OXO LTD., Thames House, Queen Street Place, London, E.C.4 (CENtral 9781)

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- **Public Health**
- **Social Services**
  - **Maternal and Child Health**
  - **Health of Nurses, Students and Hospital Staffs**
  - **Care of Old Persons and the Chronically Ill**
- **Vital Statistics and Epidemiology**
- **Communicable Diseases**
  - **(except Tropical Diseases)**
- **Diseases due to Fungi**
- **Rheumatic Diseases**
- **Heart Disease**
- **Cancer**
- **Miscellaneous Diseases**
- **Dental Hygiene**
- **Mental Hygiene**
- **Occupational Hygiene**
- **Occupational Psychology**
- **Atmospheric Pollution**
- **Physiology as Applied to Hygiene**
- **Hygiene of Buildings**
- **Sanitation**
- **Port. Ship and Aviation Hygiene**
- **Infestation and Disinfestation**
- **Food and Nutrition**
- **Bacteriology and Immunity**

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- **Tropical Bacterial Diseases**
  - **(Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)**
- **Helminthic Diseases**
- **Tropical Deficiency Diseases**
- **Other conditions related to warm climates**
- **Bacteriological, Entomological, Protozoological papers related to these diseases**

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE

WORLD HEALTH ORGANIZATION. TECHNICAL REPORT SER. No. 167 ... Public Health Nursing. 4th Report of Expert Committee on Nursing ... 597
CARTWRIGHT & JEFFERYS ... ... Married Women who Work: their Own and their Children's Health ... 597

MATERNAL AND CHILD HEALTH

MINISTRY OF HEALTH ... ... Report of Maternity Services Committee ... 598
MELLIN & KENT ... ... Ophthalmia Neonatorum. Is Prophylaxis Necessary? ... 598
MINISTRY OF EDUCATION ... ... Health of School Child. 50 Years of School Health Service 599
ROXBURGH & HAAS ... ... Diagnostic Importance of Glycosuria in Lead Poisoning in Childhood ... 599

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

MACFIE ... ... Work of Health Visitors in connection with Elderly People ... 600

VITAL STATISTICS AND EPIDEMIOLOGY

KANELLAKIS ... ... Seasonal Swing in Mortality in England and Wales ... 600
INTERNAT. DIGEST HEALTH LEGISLATION ... ... Notification of Communicable Diseases. Survey of Existing Legislation ... 600

Malaria in Saudi Arabian Oases

control regained over the vector, Anopheles stephensi

Anopheles stephensi is the most important single malaria vector in the Persian Gulf and owing to its attacks the disease is hyperendemic in the large Saudi Arabian oases of Qatif, near Dhahran, and Al-Hasa, each of which provides numerous perfect breeding sites for the vectors in complex systems of wells, springs, irrigation channels, drainage ditches, seepage areas, etc. Both oases are heavily populated. In the Al-Hasa oasis for example live some 160,000 people at a density of about 2,300 per sq. mile, a dangerously high concentration considering the enormous numbers of malaria vectors present: as many as 500-600 blood-filled *stephensi* females have been collected from one square yard of wall surface within a fifteen minute period. Paradoxically, only a few miles away in the inhospitable desert, travellers are entirely safe from infection.

Measures of control against *Anopheles stephensi* were first introduced in the fall of 1948, when a residual-spray campaign was commenced. Results were immediately successful, with almost spectacular decreases in malaria morbidity, mortality, spleen and parasite rates throughout the years 1949-1953. Then however the rates began to climb again, and it was noted that *Anopheles stephensi* were reappearing in treated buildings after only a few weeks. Clearly, the vector was developing resistance to the insecticide used, and the disease was no longer under control.

In 1955 dieldrin, most persistent of all modern insecticides, was used on an oasis-wide scale, and control was swiftly regained. Since then the morbidity rates have steadily continued to decline. In addition, there is no sign of any development of a dieldrin-resistant strain of *stephensi*. In this campaign, which is being directed by the Saudi Arabian Government, dieldrin is applied at yearly intervals.

dieldrin

dieldrin, aldrin, endrin and Phosdrin are **SHELL** *insecticides for world-wide use*

For further information apply to your Shell Company
Issued by The Shell International Chemical Co. Ltd., London, E.C.3, England.

COMMUNICABLE DISEASES

Infective Diseases

		PAGE
Gajdusek, Rogers & Bankhead	Viral and Rickettsial Diseases among Jungle Inhabitants of Upper Amazon Basin. Presence during Infancy, Childhood and Adolescence of Antibodies to Rickettsiae, to Viruses of Poliomyelitis, Mumps, Herpes, PLV Group Yellow Fever and Group B Arthropod-Borne Viruses	601
Coffey & Jessop	Rubella and Incidence of Congenital Abnormalities	601
Millen	Relationship between Environment and Congenital Malformations	602
Gitlin; Gross; Janeway	Gamma Globulins and their Clinical Significance. I. Chemistry, Immunology and Metabolism. II. Hypogammaglobulinaemia. III. Hypergammaglobulinaemia. IV. Therapeutic Uses of Gamma Globulins	602
Hammack, Bolding & Frommeyer	Dysgammaglobulinaemic Syndrome	602
Havard, Garrod & Waterworth	Deaf or Dead? Subacute Bacterial Endocarditis treated with Penicillin and Neomycin	603
Wang *et al.*	Changing Clinical Picture of Scarlet Fever during Recent Years	603
Taylor & McDonald	Milk-Borne Streptococcal Sore Throat	603
George, McDonald, Payne & Slade	Nephritis in N. Yorkshire	603
Pleydell & Hall-Turner	Outbreak of Nephritis in Northamptonshire	604
Klemola	Antibiotics and Immunity, especially in Haemolytic Streptococcal Infections	604
Hassall & Rountree	Staphylococcal Septicaemia	604
Jawetz	Combined Antibiotic Therapy in Serious Infections caused by Drug-Resistant Staphylococci (1956–7)	604
Morginson, Wood & Burgess	Gamma-Globulin Therapy in Chronic Staphylococcic Dermatoses. Comparison of Serum Gamma-Globulin Levels and Serum Antibacterial Activity	605
Kozlovskaia	Passage of Measles and Influenza Viruses across Placenta	605
Bell	Rubella in Pregnancy	605
Arora	Isoniazid and Combination of Chloramphenicol and Tetracycline in Whooping Cough	605
Chatterjee	Smallpox in W. Bengal including Calcutta—Problems of Control and Eradication	605
Harboe & Juul	Asian Disease Illuminated by Morbidity Absenteeism from Public Schools in some Norwegian Towns	605
Hovland	Asian Disease among Schoolchildren	606
Herzberg, May & Reuss	Results of Investigations of 1957–8 Influenza Pandemic	606
Petersdorf, Fusco, Harter & Albrink	Pulmonary Infections complicating Asian Influenza	606
Diggle	Tracheotomy in Influenza	607
Reeves, Garfield, Polasky & Hamburger	Treatment of Moderate and Severe Pneumococcal Pneumonia with Oral Phenoxymethyl Penicillin	607
Baldridge	Immunologic Aspects of Herpes Simplex, Herpes Zoster and Vaccinia	607
Krugman & Ward	Infectious Hepatitis	607
Wielopolska & Wojciechowska	Behaviour of Aldolase in Serum of Persons in Close Contact with Persons Suffering from Infective Hepatitis	607
Colson, Garnung, Hugonot & Moras	Treatment of Virus Hepatitis with Metacortandracine	608
Heycock	Partially Treated Meningitis in Infants	608
Rosa & La Placa	Distribution of Poliomyelitis Neutralizing Antibodies in Population of Bologna	608
Paktoris & Vorontsova	Poliomyelitis in Lithuanian S.S.R. in 1956	608
Rindge	Poliomyelitis in Connecticut in 1958	608
Russell	Management of Poliomyelitis	609
Batson, Christie, Turner, Michal & Barrick	Persistence of Poliomyelitis Antibodies after Primary Immunization of Infants	609
Svedmyr, Von Zeipel, Holmgren & Lindahl	Tick-Borne Meningoencephalomyelitis in Sweden	609
Zakorkina	Tick-Borne Encephalitis in North of Omsk Oblast	610
Fedorov	Reservoirs of Russian Spring-Summer Encephalitis Virus in Wild Birds in Tomsk Focus	610
Levkovich & Pogodina	Alimentary Route of Infection in Tick-Borne Encephalitis	610
Dumina	Extent of Infection with Russian Spring-Summer Encephalitis Virus of Tick *Ixodes persulcatus* after Sucking Blood of Immune Animals	610

BOOKS ON HYGIENE

H. K. LEWIS & Co. Ltd. can supply all Standard Works and Textbooks on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request.

MEDICAL AND SCIENTIFIC LIBRARY

Annual Subscription from £1 17s.6d.

The Library includes all standard and recent works in all branches of Hygiene and Sanitary Science. **Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

THE LIBRARY CATALOGUE revised to December 1956, containing a classified Index of Authors and Subjects. £2 2s. net ; postage 2s. To subscribers to the Library, £1 5s. ; postage 2s.

SECONDHAND DEPARTMENT

A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1
Telephone: EUSton 4282. Telegrams: Publicavit, Westcent, London
Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE

ATMOSPHERIC POLLUTION

OCCUPATIONAL PSYCHOLOGY

PHYSIOLOGY AS APPLIED TO HYGIENE

HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER)
including Index 30/- ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET LONDON W·C·I *TELEPHONE: MUSeum 3041*

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

		PAGE
Gorchakovskaia, Preobrazhenskaia & Dobrynina	Study of Population of Tick *Ixodes persulcatus* P. Sch. in Years after Single Application of Acaricides to Forest Areas	610
Proc. Roy. Soc. Med.	Symposium on Arthropod-Borne and other Forms of Encephalitis in Tropics	611
Downs & Anderson	Distribution of Immunity to Mayaro Virus Infection in West Indies	611
Mathur & Prasad	1958 Epidemic of Virus Encephalitis	611
Havlík & Potužník	Enteric Fever. Investigation of Course of O and Vi Antibody Titres by Several Methods	612
Cotrufo, Colucci, Finelli & Molese	Treatment of Typhoid by Corticoids and Corticoids + Chloramphenicol	612
Pezzullo & Tedeschi	Combined Treatment of Typhoid with Chloramphenicol and Phenylbutazone	612
Seidler & Šváb	Urinary Carriage of *Salm. paratyphi B* in Boy Aged 4	613
Russu, Nas, Suciu, Dorin & Ulmeanu	Study of Efficiency of Oral and Combined TAB Vaccination by means of Epidemiological Test	613
Naumann & Röhrs	Double Infection with Salmonellae	613
Drachman, Petersen, Boring & Payne	Widespread Salmonella Reading Infection of Undetermined Origin	613
Val'Vachev & Romanov	Institution Outbreak of Boyd-Novgorodskaia III Dysentery	614
Chu	Artificial Hibernation in Treatment of Toxic Dysentery	614

Tuberculosis

Muratovski	Tuberculosis Mortality in Children in Macedonia 1947–54	614
Wegelius & Wijkström	Mass Radiography in Sweden	614
Källqvist	Long-term Prognosis in Pulmonary Tuberculosis detected by Mass Radiography. County-Wide Survey with Controls and Comparison between 2 Mass Surveys with 7-Year Interval	614
Awan & Dar	Tuberculosis Survey of Mozang High School, Lahore	615
Warmington	Tuberculin Sensitivity in Co. Fermanagh, N. Ireland, 1952–5	615
Sallinen	Finnish Intradermic Tuberculin Test	616
Cory	Tuberculin Survey in Island of Montserrat, British West Indies	616
Breathnach	Source of Infection in Primary Tuberculosis	617
Myers	Natural History of Tuberculosis in Human Body. I. Demonstrable Primary Pulmonary Infiltrate	617
Kaida *et al.*	Apical Localization of Pulmonary Tuberculosis	618
Edge & Bottrill	Resection for Pulmonary Tuberculosis	618
Large, Laird & Harrison	Lung Resection for Tuberculosis in Army	619
Pecora	Importance of Preresection Drug Therapy for Pulmonary Tuberculosis	619
Fox & Sutherland	5-Year Assessment of Patients in Controlled Trial of Streptomycin with Different Doses of Para-Aminosalicylic Acid in Pulmonary Tuberculosis	619
Leifheit & Smith	Quantitative Estimation of Isonicotinic Acid Hydrazide and p-Aminosalicylic Acid in Blood Serum	620
Benians & Pinto	Fatal Case of Viomycin Hypersensitivity	620
Steenken, Montalbine & Thurston	Antituberculous Activity of Kanamycin *in vitro* and in Experimental Animal	620
Wright, Renzetti, Lunn & Bunn	Administration of Kanamycin to Patients with Tuberculosis	620
Somner, Ross, MacLeod, Stewart, Horne & Crofton	"1314" in Pulmonary Tuberculosis	620
Rist, Grumbach & Libermann	Experiments on Antituberculous Activity of Alpha-Ethyl-Thioisonicotinamide	621
Brouet, Marche, Rist, Chevallier & LeMeur	Antituberculous Effectiveness of Alpha-Ethyl-Thioisonicotinamide in Tuberculosis in Humans	621
Lévi Valensi & Molina	Treatment of Pulmonary Tuberculosis outside Hospital	621
Acta Tuberculosea Scandinavica	Prognosis of Tuberculous Pleurisy. Follow-up of Patients discharged from Ullevål Hospital during 1926–45	622
Gray & Taft	Aspiration Liver Biopsy in Diagnosis of Miliary Tuberculosis	622
Misra, Saxena & Misra	Levinson's Test in Tuberculous Meningitis	623
Reilly	Miliary and Meningeal Tuberculosis	623
Lorber	Freeze-Dried BCG Vaccination of Newborn Infants by Multiple Puncture Method	623
Sparrow & Carré	BCG Vaccination by Mouth	624

"VISIJAR"

"PERSPEX" SPECIMEN BOXES & APPARATUS

WILL OUTLIVE ALL SUBSTITUTES

Requests for price lists to

THE VISIJAR LABORATORY SUPPLY CO. LIMITED

149, LONDON ROAD, CROYDON, SURREY
CRO 8228/9

BACK ISSUES OF THE

Tropical Diseases Bulletin

AND

Bulletin of Hygiene

WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

Silence is Golden!

TRUVOX

FLOOR POLISHER/ SWEEPER

Specially designed for

HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:

TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

Disinfection and Sterilization

Theory and Practice

G. SYKES, M.SC., F.R.I.C.

Foreword by G. S. WILSON, M.D., F.R.C.P., D.P.H., *Director of the Public Health Laboratory Service*

416pp. 22 figs. 8 plates 50 tables 75s. net

'An outstanding contribution to a field of science of great significance to health and industrial efficiency.'

THE TIMES REVIEW OF INDUSTRY

'This is a book that can be highly recommended.'

CANADIAN JOURNAL OF PUBLIC HEALTH

SPON

E. & F. N. SPON LTD.,
22 HENRIETTA ST., LONDON W.C.2

COMMUNICABLE DISEASES—*cont.*

Tuberculosis—*cont.*

		PAGE
PARROT, CATANEI & LAVERDANT ...	Comparison of Post-Vaccinal Allergy in Infants Vaccinated with BCG by Scarification and Repeated Oral Administration ...	624

Venereal Diseases

DUREL & BOREL	Syphilis without Chancre: Role of Antibiotics	625
MILLER, BRODEY & HILL	Laboratory Studies in Series of Biologic False-Positive Reactors	625
RANQUE & DEPIEDS	TPI Test in Tropics	625
GERTLER	Penicillin Resistance in Gonococci	626
KARLTORP & LODIN	Tetracycline Hydrochloride and Tetracycline Hexametaphosphate in Treatment of Non-Specific Urethritis	626
FILADORO & ORSI	Cultivation of *Trichomonas vaginalis* on solid Medium and its Application to Assay of Trichomycin Potency	626
COSAR & JULOU	Activity of 8823 R.P. in Experimental *Trichomonas vaginalis* Infections	626

Other Communicable Diseases

NEYMAN & WOJDON	Tetanus Cases in Province of Poznan, 1945–56	627
PATEL & JOAG	Dosage of Antitetanus Serum in Treatment of Tetanus ...	627

Zoonoses

WUNDT	Brucellosis in Württemberg	627
GUDOSHNIK	Part Played by Free-Living Ticks and by Rodents in Circulation of *Brucella*	628
LJUNG	Diagnosis of Tularaemia: Difficulties presented by Atypical, Abortive and Asymptomatic Forms of Disease	628
SHARP	Laboratory Diagnosis of Leptospirosis with Sensitized-Erythrocyte Lysis Test	628
BEAUDETTE	Progress in Psittacosis Research and Control	628
KONRÁD & STRAUSS	Clinical Aspects, Therapy and Prevention of Ornithosis ...	630
POLLARD	Therapy of Psittacosis-Infected Parakeets with Chlortetracycline	630
SMORODINTSEV, CHUDAKOV & CHURILOV	Haemorrhagic Nephroso-Nephritis	630
LEBEDEV	Results of Expedition Study of Haemorrhagic Nephroso-Nephritis in Yaroslavl Oblast	630

RHEUMATIC DISEASES

MUIR	Rheumatic Heart Disease in Singapore	631

HEART DISEASE

MORTON, BEAVER & ARNOLD ...	Heart Disease Screening in Elementary School Children ...	632
MORTON, HOFFMAN, CLEERE & DODGE	Comparison of 3 Methods of Screening for Paediatric Heart Disease	632

CANCER

NAU, NEAL & STEMBRIDGE	Physiological Effects of Carbon Black. II. Skin Contact ...	632
POLHEMUS & KOCH	Leukaemia and Medical Radiation	633

DENTAL HYGIENE

JENKINS, FORSTER, SPEIRS & KLEINBERG	Influence of Refinement of Carbohydrates on their Cariogenicity. *In vitro* Experiments on White and Brown Flour	633
WHEATCROFT & KLIMT	Survey of Oral Health, Qalyub Project, Egypt	633
LEWIS & LEATHERWOOD	Effect of Natural Fluorides on Caries Incidence in 3 Georgia Cities	634

OCCUPATIONAL HYGIENE

MINISTRY OF LABOUR & NATIONAL SERVICE	Length of Working Life of Males in Great Britain	634
BROWN & WILSON	Chronic Bronchitis in Industry; Trial of *H. influenzae* Vaccine	634

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller. Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Desoille, Mollaret & Kolochine-Erber	Compensation for Leptospirosis of Occupational Origin ...	635
Ask-Upmark	Occupational Mortality in 3 Swedish Professions	635
Stöber & Bauer	Evaluation of Current Theories on Cause of Silicosis ...	635
Miyahara	Changes occurring in Blood and other Tissues in Experimental Silicosis, Caused by Inhaled Coal-Dust	636
Date	Antibody Produced by Intravenous Injection of Rock Crystal Suspension coated with Rabbit Serum Protein and Non-coated Rock Crystal Suspension	636
Kashimura	Antibody produced after Intravenous Administration of Particulate Silicic Stone in Suspension	636
Oyanguren, Schüler, Maturana, Guijón, Cruz, Valenzuela & Guzmán	Radiological Investigation of Silicosis by means of 70 mm. Film	637
Champeix & Allaux	Silicosis Presenting Radiologically as Massive Shadows from Exposure to Dusts of Calcined Silica	637
Roche, Dalloz, Therasse & Brune	Pneumotachography and Pulmonary Silicosis	637
Bellini & Ghislandi	2 Cases of Silicosis with Sclerodermia	637
Magistretti, Sartorelli & Peirone	Study of Pulmonary Haemodynamics in Silicotic Patients by means of Cardiac Catheterization	638
Policard & Jarry	Pathological Diagnosis of Silicosis and its Tuberculous Complication	638
Matsuoka	Experimental Silico-tuberculosis; Comparative Investigations by amounts of Free Silicic Acid contained in Dust ...	638
Sutton, Middleton & Body ...	Reaction of some Silicates with Chelating Agents	639
Hodkinson	German Research and Techniques in Airborne-Dust Measurement and Suppression in Coal-Mines	639
Schreibeis & Schreibeis	Free Silica Dust Concentrations measured in 9 Brick Manufacturing Plants	639
Asset	Nasal Sampling of Aerosols in Experimental Animals ...	639
Hasselt; Institut d'Hygiène des Mines	Ventilation in Mines by Electric Analogue System	640
Molitor, Mosinger, Barthel, Heyart & Périnet	Research on Dusts from Rolling Mills and Pathogenic Effects; Pulmonary Siderosis	640
Cochrane, Higgins & Gilson ...	Yet Another Industrial Pneumoconiosis?	640
Tolot & Czuchro	Comparative Incidence of Manifestations of Lead Poisoning in Persons at Risk	641
Burstin	Lead Colic and Appendicitis	641
Holtaway	Evaluation and Control of Lead Exposures in Powder Metallurgy Operations	641
Keplinger, Tebrock & Deichmann	Pharmacological Effects of Magnesium Arsenate Phosphor on Experimental Animals	642
Arch. Indust. Health	Conference on Beryllium Disease, 1958	642
Browning	Evaluation of Methods of Assessment of Toxicity of Chemical Compounds	644
Saita & Moreo	Thalassaemia and Occupational Blood Diseases. I. Thalassaemia and Chronic Benzol Poisoning. II. Thalassaemia and Chronic Lead Poisoning	645
Rofe	Response to Heinz Bodies in Rat	645
Tolot, Droin & Genevois	Dimethylformamide Intoxication	646
Wolfe, Walker, Elliott & Durham	Evaluation of Health Hazards involved in House-Spraying with DDT	646
Matsuyama	BHC Poisoning	647
Fletcher, Press & Wilson ...	Exposure of Men to Dieldrin in Residual Spraying	647
J. Amer. Med. Ass.	Prevention and Control of Occupational Dermatitis	647
Levin, Brunner & Rattner ...	Lithographer's Dermatitis	647
Oshima	Dermatitis developed specifically on Feet of Coal-Miners ...	648
Arch. Malad. Professionnelles ...	Conference on Plastics	648
Internat. Commission on Radiological Protection	Recommendations of the Commission	648
Boone, Rogers, White & Harris	Toxicity, Excretion and Tissue Distribution of Ionium in Rats	649

ATMOSPHERIC POLLUTION

Kalyzhniy	Effect of Air Pollution with Discharges from Metal Works on Health of Children	649

HYGIENE OF BUILDINGS

Housing and Building Construction

Dept. of Health for Scotland ...	Designing for Safety in Home	650

HYGIENE OF BUILDINGS—*cont.*

Heat Regulation, Ventilation and Lighting

PAGE
J. Inst. Heating & Ventilating Engineers ... ... Discussion on Ventilation of Operation Theatres 650

SANITATION

Water and Swimming Baths

Zimmermann, Rheinfurth & Schwille ... ... Drinking-Water and Tar Products 651

Sewage, Trade Waste and Refuse Disposal

Cornelson, Sechter, Balteanu & Avram ... ... Study of Specific Bacteriologic Pollution of Natural Basins by Sewage from Penicillin Plant 651
Mizuno, Rogers & Kaplan ... Development of General Purpose Disinfectant for Military Use 651

FOOD AND NUTRITION

Foodstuffs

Švec ... ... Survival of Micro-organisms on Paper and Waxed Paper Wrappers 652
Smith ... ... Milk-Borne Disease 652
Campbell, Murthy, Goldin, Robinson, Straub, Weber & Lewis ... Occurrence of Strontium-90, Iodine-131 and Other Radionuclides in Milk 652

Food Poisoning

Bjerke, Eriksen & Lunde ... ... Botulism from Salted, "Rak"–Treated Trout 652
Clarenburg, Kampelmacher, Van Keulen & De Nooy ... ... Outbreak of Food Poisoning caused by Contamination of Meat with *Salm. typhi-murium* 653

BACTERIOLOGY AND IMMUNITY

General

Morse & Alire ... ... Agar Medium indicating Acid Production 653
Kosunen & Parmala ... ... Use of Phenolphthalein Phosphate-Chromate Plate as Selective Isolation Medium for Micrococci 653

Bacteriostatic and Bactericidal Substances; Disinfection

Wolstenholme & O'Connor ... Ciba Foundation Symposium on Drug Resistance in Micro-Organisms 654
Suter & Ulrich ... ... Routine Bacterial Sensitivity Studies 654
Brauss ... ... Bacterial Resistance 654
Hyman ... ... Anaphylactic Shock after Therapy with Penicillinase ... 655
Reisch ... ... Penicillinase Therapy—Clinical Report of Severe Reactions 655
Sweeney, Hardy, Dornbush & Ruegsegger ... ... Demethylchlortetracycline: Comparison with Chlortetracycline and Tetracycline 655
Kunin, Wilcox, Najarian & Finland ... ... Susceptibility and Cross-Resistance of Bacteria to 4 Related Antibiotics: Kanamycin, Paromomycin, Neomycin and Streptomycin 655
Margalith, Beretta & Timbal ... Matamycin, a New Antibiotic. I. Biological Studies ... 656
Sensi, Ballotta & Gallo ... ... Matamycin. II. Isolation and Characterization 656
Gentles, Barnes & Fantes ... Presence of Griseofulvin in Hair of Guineapigs after Oral Administration 656
Ito, Aoki, Yamamoto, Yuasa, Mizobata & Tone ... ... Mode of Action of Cycloserine 656
Nuffield Provincial Hospitals Trust ... ... Planning and Organization of Central Syringe Services ... 657
Sterile Supply Arrangements for Hospitals. Present Sterilizing Practice in 6 Hospitals 657
Darmady, Hughes, Jones & Verdon Failure of Sterility in Hospital Ward Practice 657

Individual Bacteria

Chomiczewski ... ... Combined Action of Phage B and some Antibiotics on Process of Changes in Toxigenicity of *C. diphtheriae* 658
Strauss & Hendee ... ... Effect of Diphtheria Toxin on Metabolism of HeLa Cells ... 658
Lugosi ... ... Method of culturing *Myco. tuberculosis* with Use of Freeze-Dried Loewenstein-Jensen Medium 659

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Katsuyama & Kanai	Application of "Agar Film Method" on Single Cell Culture of Tubercle Bacilli	659
Katsuyama & Kanai	Dissociation of Strain of Tubercle Bacilli by Single Cell Cultivation for Virulence Study	659
Royal Netherlands Tuberculosis Ass.	Tubercle Bacilli and Pyruvic Acid	659
Aoyagi & Mizuno	Chemical Nature of Substance extracted from Egg Yolk and reported by Yamane to be Growth-Stimulatory to *Myco. tuberculosis*	660
Hirsch & Cattaneo	Mycobacteria; their Chemical Composition and Virulence. II. Oxidation-Reduction Potential of Mycobacteria	660
Saenz	Experimental Tuberculosis of Golden Hamster	661
Janicki	Circulating Levels of "Plasma Factor" responsible for *in vitro* Leukocyte Cytolysis during Sensitization of Guinea-pigs with *Myco. tuberculosis*	661
Wechselberg	Effect of Volatile Oils on Growth of Tubercle Bacilli *in vitro*	661
Seri	Clinical Evaluation of Factors involved in Resistance of Tubercle Bacilli to Antituberculous Drugs	662
Royal Netherlands Tuberculosis Ass.	Resistance and Virulence of Tubercle Bacilli. A. Resistance in Sanatorium Cases. B. Resistance, Catalase-Activity and Virulence of Tubercle Bacilli in Laboratory. C. Loss of Virulence of Isoniazid-Resistant Bacilli. D. Viability and Virulence of Tubercle Bacilli Found in Resected Tuberculous Pulmonary Tissue	662
Andrejew, Gernez-Rieux & Tacquet	Action of Isoniazid Hydrazid and D-Cycloserine on Purified Peroxidase and Peroxidase Activity of Tubercle Bacilli	663
Takahashi & Nagayama	Non-Selective Mechanism of Development of Isoniazid Resistance by *Myco. tuberculosis*	664
Muftic	Resistance of Mycobacteria to Decolorization	664
Berthrong & Hamilton	Tissue Culture Studies on Resistance in Tuberculosis. II. Monocytes from Normal and Immunized Guineapigs infected with Virulent Human Tubercle Bacilli	664
Lurie; Zappasodi; Levy; Blaker	Role of Thyroid in Native Resistance to Tuberculosis. I. Effect of Hyperthyroidism. II. Effect of Hypothyroidism. Mode of Action of Thyroid Hormones	665
Kikuth & Pothmann	Combined Use of Isoniazid and BCG in Prophylaxis of Tuberculosis	666
Chapman & Guy	Scrofula caused by Atypical Mycobacteria	666
Lebek	Cultural Differentiation of Acid-Fast Saprophytic Mycobacteria and Tubercle Bacilli from Human Specimens	667
Tolhurst, Buckle & Wellington	Experimental Infection of Calves with *Myco. ulcerans*	667
Gillissen & Birkenhoven	Comparative Assessment of Solid Selective Media	667
Olitzki & Olitzki	Infection-Promoting Effect of Intermediates of Tricarboxylic Acid Cycle on Pathogenic and Nonpathogenic Enterobacteriaceae	667
Meislowa	Problem of Standardization of Typhoid Vaccines. I. Biological Tests in Mice	668
Gupta, Gupta & Mullick	Preparation of Adsorbed Vaccine for Typhoid, Cholera and Dysentery	668
Rauss, Kétyi & Réthy	Effect of Adjuvants and Detoxification on Enteric Vaccines	668
Rauss, Kétyi, Réthy & Joó	Preparation, Side-Effects and Antigenicity of Combined Typhoid-Dysentery-Tetanus Vaccines	668
Megay, Marek & Grims	Isolation of *Salmonella* Strains from Dried Stool Specimens	669
Staub, Tinelli, Lüderitz & Westphal	Immunochemical Studies on *Salmonella*. V. Role of Certain Sugars, Particularly 3–6 Didesoxyhexoses in Specificity of Kauffmann-White O Antigens	669
Brandis	Bacteriophage Typing of *Salm. typhi* and *Salm. paratyphi B* Strains	670
Gherman, Zalman, Levin & Petrila	Methods of detecting Typhoid Carriers in Rural Areas	670
Orlova	Virulence and Antigenicity of *Salm. typhosa* Strains and Antigenicity of Corresponding Vaccines in relation to Content of Vi Antigen as estimated by means of Haemagglutination Reaction	670
Public Health Lab. Service	*Salmonella* Organisms in Animal Feeding Stuffs and Fertilizers	670
Newell, McClarin, Murdock, MacDonald & Hutchinson	Salmonellosis in N. Ireland with special reference to Pigs and Salmonella-Contaminated Pig Meal	670
Stokes & Bayne	Dwarf Colony Mutants of Salmonellae	671

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Ribi, Milner & Perrine	Endotoxic and Antigenic Fractions from Cell Wall of *Salm. enteritidis*. Methods for Separation and Some Biologic Activities	671
Grosz & Norton	Effect of Chlorpromazine on *Salm. enteritidis* Infection in Mice	671
Liberman, Earle, Ikari & McCullough	Immunity afforded by specifically absorbed, Unabsorbed and Combinations of Salmonella Antisera	672
Gärtner & Böhlck	Salm. Java Infections. Study of 23 Strains	672
Michael & Braun	Serum Spheroplasts of *Sh. dysenteriae*	672
Gillies & Duguid	Fimbrial Antigens of *Sh. flexneri*	672
Simmons	Serological Specificity and Cross-Reactivity of some *Sh. flexneri* Extracts	673
Okabe	Antigenic Variation in relation to Classification of *Sh. flexneri*	673
McGuire & Floyd	Experimental Shigellosis. I. *Shigella* Infections of Normal Mice. II. Effect of Fasting and Fatigue on *Sh. flexneri* 3 Infections in Mice	673
Serény	Acquired Natural Immunity after Recovery from Keratoconjunctivitis Shigellosa	673
Golba, Chojnacka & Klecha	Water-Borne Epidemic of Bacillary Dysentery in Factory	673
Hösel	Experimental Studies on So-Called Evaluation of *E. coli* Strains. I. Attempts at Differentiation by Use of Ordinary Diagnostic Methods. II. Type Differentiation on Endo Agar and by *coli* Index. III. Factors affecting Determination of *coli* Index. IV. Production of and Sensitivity to Colicines in *coli* Strains	674
Gillies & Alper	Reductions in Lethal Effects of Radiations on *E. coli B* by Treatment with Chloramphenicol	675
Williams	Epidemic Staphylococci	675
Maccabe	Staphylococcal Infection complicating Respiratory Disease	675
Rountree & Beard	Infection with Phage Type 80 Staphylococci in Australia	676
Koch, Lepley, Schroeder & Smith	Staphylococcic Infections occurring on Surgical Service	676
Rajković	Plasma-Agar and Cadness-Graves Test in Identification of Pyogenic Staphylococci	676
Wilson, Foter & Lewis	Rapid Test for Detecting *Staph. aureus* in Food	676
Steward & Kelly	Variation of Bound Coagulase of *Staph. aureus*	677
Rosenblum & Jackson	Mixtures of Coagulase-Positive Staphylococci and Strain Variation in Specimens from Clinical Sources	677
Brown, Prichard & Quilliam	Some Pharmacological Properties of Alpha-Toxin of *Staph. pyogenes*	677
Wasz-Höckert, Kosunen & Kohonen	Effect of Ethyl Alcohol on Susceptibility of Mice to Staphylococcal Infection	677
Žmegac, Žmegac & Babić	Problem of Resistance of Staphylococci in Pyogenic Affections of Skin	677
Lawrence	Effects of Staphylococcal and Streptococcal Toxins upon Mammalian Skin in Tissue Culture	677
Henningson	Biochemical Differentiation of Group A and "Human C" Streptococci	678
Brumfitt & Masters	Use of Selective Media for Detection of Beta-Haemolytic Streptococci	678
Wilson	Relative Importance of Capsule and M-Antigen in determining Colony Form of Group A Streptococci	678
Obiger	Typing Haemolytic Streptococci by Agglutination Test	678
Schneweis & Nikfetrat	Combined Bacitracin- and Haemolysis-Inhibition Test for Practical Group Differentiation of Haemolytic Streptococci	678
Zeman & Rotta	Labelling of Beta-Haemolytic Streptococci with Radio-active Phosphorus and their Detection after Experimental Infection	679
Schwab, Cromartie & Roberson	Identification of Toxic Cellular Component of Group A Streptococci as Complex of Group Specific C Polysaccharide and Protein	679
Mesrobeanu, Baldovin, Mihalco & Mitrica	Purification and Concentration of Streptolysin O by means of Trichloracetic Acid	679
Reyn, Korner & Bentzon	Effects of Penicillin, Streptomycin and Tetracycline on *N. gonorrhoeae* isolated in 1944 and 1957	679
Pillot & Faure	Antigenic Constitution of *Treponema*. I. Protein Antigen of Reiter's Strain	680
Heymann; Siefert; Steiger	Investigations on Spirochaetal Antigens	680

BACTERIOLOGY AND IMMUNITY—*cont.*

PAGE

Individual Bacteria—*cont.*

Horne, Turner & Willis ... ... Inactivation of Spores of *B. anthracis* by Gamma-Radiation 680
Fulthorpe ... ... Estimation of Tetanus Toxoid by Different Methods, including Haemagglutination Inhibition 680
Iakovlev ... ... Importance of Antitoxic Immunity for Defence of Body in Respiratory Penetration by Bacterial Toxins. I. Role of Passive Immunity in Defence of Body against Respiratory Disease caused by *Cl. botulinum* Toxins 681

Fungi

Knight, Hill & Marcus ... ... Immunization of Mice with Polysaccharides of *H. capsulatum* 681

Bacteriophages

Kubiński ... ... Investigations on Adsorption of Phage I Vi to Cells of *Salm. typhi* 682
Kubiński ... ... Influence of Substrate on Curve of Adsorption of Bacterial Viruses to Cells 682
Entner & Engelsberg ... ... Effect of Glucose on Bacteriophage Synthesis in *Salm. typhimurium* 682
Dénes & Polgár ... ... T2 Phage Infection of "Protoplasts" obtained by Penicillin Treatment of *E. coli B* 683
Bertani ... ... Effect of Ultraviolet Light on Establishment of Lysogeny ... 683
Cohen ... ... Variant of Phage P2 originating in *E. coli*, Strain *B* ... 683
Kelemen ... ... Genetic Transduction in *Salmonella* Group 683
Pospelova ... ... Biological Features of Diphtheria Bacteriophages. I. Isolation of Phage from Patients, Range of Action and Resistance of Phage to Inactivating Agents 684
White, Foster & Knight ... ... Propagation of Staphylococcal Phages in Liquid Medium ... 684
Parnas & Bulikowski ... ... Anti-Brucella Phage 684
Ivánovics & Lantos ... ... Effective Method for Isolation of Anthrax Phages 684
Jeener ... ... Action of Ribonuclease on Sensitive and Non-Induced Lysogenic Cells of *B. megaterium* 684
Jeener ... ... Action of Ribonuclease on Phage Protein Synthesis by Induced Lysogenic *B. megaterium* Culture 685

Viruses

Kabanova, Mastyukova & Pishchurina ... ... Vaccinia Virus Multiplication in Rabbit Cornea Epithelial Cells with Fluorescent Antibodies 685
Shin-June, U-Wey-Huang & Tsyan-Sue-Shan ... ... Mechanism and Control of Post-Vaccination Immunity of White Mice in Tick-Borne Encephalitis 685
Biegeleisen, Scott & Lewis ... Rapid Diagnosis of Herpes Simplex Virus Infections with Fluorescent Antibody 685
Farnham ... ... Formation of Microscopic Plaques by Herpes Simplex Virus in HeLa Cells 686
Stoker ... ... Mode of Intercellular Transfer of Herpes Virus 686
Heath & Tyrrell ... ... Behaviour of some Influenza Viruses in Tissue Cultures of Kidney Cells of Various Species 686
Hannoun ... ... Effect of Conjunctival Instillation of Influenza Virus in Rabbits and Mice 686
Sovinová & Ludvík ... ... Electron Microscopic Study of Influenza Virus *A-equi-Praha/56* 686
Hollós & Barna ... ... Electronmicroscopic Examination of Complete and Incomplete Influenza Viruses. II. Fine Structure of Complete Influenza Virus 687
Youngner & Noll ... ... Virus-Lipid Interactions. I. Concentration and Purification of Viruses by Adsorption to Cholesterol Column and Studies of Biological Properties of Lipid-Adsorbed Virus 687
Borecký ... ... Factor destroying Virus Receptors in Pneumococcal Cultures. III. The Effect of Pneumococcal Factor 103 in Experiments *in vivo* 687
Kundin, Robbins & Smith ... ... Inhibition of Influenza Virus Multiplication in Tissue Culture by Structural Analogues of Amino Acids 687
Cohen & Belyavin ... ... Haemagglutination Inhibition of Asian Influenza Viruses: New Pattern of Response 688
Bogoch, Lynch & Levine ... ... Influence of Brain Ganglioside on Neurotoxic Effect of Influenza Virus in Mouse Brain 688
Zhdanov, Hamburg & Svet-Moldavsky ... ... Antigenicity of Inhibitor of Influenza Virus Strain A/Asia/57 688
Sobis & Szadowska ... ... Influence of Penicillin, Streptomycin and Sulphathiazole on Changes in Lungs of Mice infected by Influenza Virus ... 688

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

		PAGE
KROEGER & KEMPF	Inactivation of Influenza Virus by Low Voltage Roentgen Rays	688
BLAŠKOVIČ, RATHOVÁ & BORECKÝ	Antigenic Relationships to Myxoviruses of Virus isolated from Respiratory Infection in Ducks	688
LIEBERMAN & FRIEDMAN	Growth Characteristics of Adenoviruses. I. Production and Release of Complement-Fixing Antigen and Infectious Virus	689
NÁSZ & TÓTH	Cytopathic Changes caused by Different Types of Adenovirus Group in Human Amnion and Detroit-6 Cell Cultures	689
CHURCHER, SHEFFIELD & SMITH	Poliomyelitis Virus Flocculation: Reactivity of Unconcentrated Cell-Culture Fluids	689
WARREN, HARE & GOLDMAN	Complement-Fixing Antigens of Living and Inactivated Poliovirus. II. Complement-Fixing Activity of Poliomyelitis Vaccine and its Relation to Immunogenic Potency	690
FARRELL & REID	Disk-Plate Assay of Poliomyelitis Antibodies	690
LENKEVICH & IL'ENKO	Experimental Chemotherapy of certain Virus Infections	690
HOTCHIN & CINITS	Lymphocytic Choriomeningitis Infection of Mice as Model for Study of Latent Virus Infection	690
DOHERTY	Effects of Yellow Fever and West Nile viruses on Reactions of Human Appendix and Conjunctiva Cells to Several other Viruses	690
SHUBLADZE	Viruses related to Aetiological Agent of Spring-Summer Tick-Borne Encephalitis	691
GAIDAMOVICH	Virus isolated from Encephalitis Patient with Amentia Syndrome	691

Immunity

MIR CHAMSY, SOHRAB & KROUR	Immunization and Formation of Neutralizing and Agglutinating Antibodies in Rabbits after Injection of Vaccine Virus Incorporated in Combined Vaccines: Role of Booster Doses	692
MIYA, MARCUS & THORPE	Effect of Properdin on Whole Body Irradiated Mice and Rats	692
KORÍNEK & PALUSKA	Technique for Isolation of Antigen Groups of Human Serum by Electrophoretic Fractionation, Providing Possibility of comparing Antigenic Relationship of Proteins by Method of Precipitation in Agar Gel	692

MISCELLANEOUS

BEECHER	Experimentation in Man	693

BOOK REVIEWS

HUNTER	Health in Industry	693
HARMSEN	Homeless Foreigners in Federal Republic of Germany	693
BAKER	Cause of the Endemical Colic of Devonshire	694
AINSWORTH & AUSTWICK	Fungal Diseases of Animals	694
COLTART, RAINE & HARRISON	Social Work in Tuberculosis	695
UNITED STATES ARMY, MEDICAL DEPT.	Preventive Medicine in World War II. Vol. IV	695
SWIFT	Sanitary Officers' Practice: Environmental Hygiene	695
AIR MINISTRY	Handbook of Preventive Medicine	696

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.

treatment
suppression
eradication

'daraclor'
BRAND
TABLETS

the **new** all-purpose antimalarial

Treatment	'DARACLOR' ensures swift and efficient control of the acute attack. In semi-immunes, a single dose is sufficient.
Suppression	'DARACLOR' is without question the most powerful suppressant of malaria now available. With 'DARACLOR', the development of parasite-resistance is extremely unlikely.
Eradication	By virtue of its combined schizonticidal, suppressant, and sporontocidal properties, 'DARACLOR' is unsurpassed as an adjuvant to vector control. Mass 'single-dose' distribution is suggested as a follow-up to spraying campaigns.

In eradication programmes, for protection of troops and labour forces, and for treatment and protection of the individual . . .

'daraclor'
is the **complete** antimalarial

(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base.)

BURROUGHS WELLCOME & CO., LONDON
(The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON RD., LONDON, N.W.1

GLAXO

DERMATOLOGICAL DEVELOPMENT OF GREAT PROMISE

GRISOVIN

(griseofulvin Glaxo)

The first oral treatment for fungal infections of the skin

Systemic therapy of intractable fungal infections of the skin has long been recognised to be the desirable form of treatment. It can now be achieved orally with griseofulvin, an antibiotic developed by Glaxo.

In extensive trials conducted in Britain, the U.S.A. and Austria griseofulvin given by mouth has demonstrated quite remarkable and consistent activity against dermatophyte infections of the skin, hair and nails. Previously untreatable *Trichophyton rubrum* infections, some of many year's duration, have made a striking response to the antibiotic.

An introductory booklet on Grisovin is available. It summarizes existing knowledge, now accumulating rapidly, and provides a guide to treatment with this important new Glaxo antibiotic.

GRISOVIN TABLETS

Tablets containing 250 mg griseofulvin

Bottles of 100 and 1000

GLAXO LABORATORIES LTD, GREENFORD,
MIDDLESEX BYRon 3434

Subsidiary Companies or Agents in most countries

GRISOVIN IS A GLAXO TRADE MARK

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port, Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- Tropical Bacterial Diseases
  - (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin*.

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PAGE

Perspectives in Venereology, 1958, by R. R. Willcox, M.D. 697

PUBLIC HEALTH

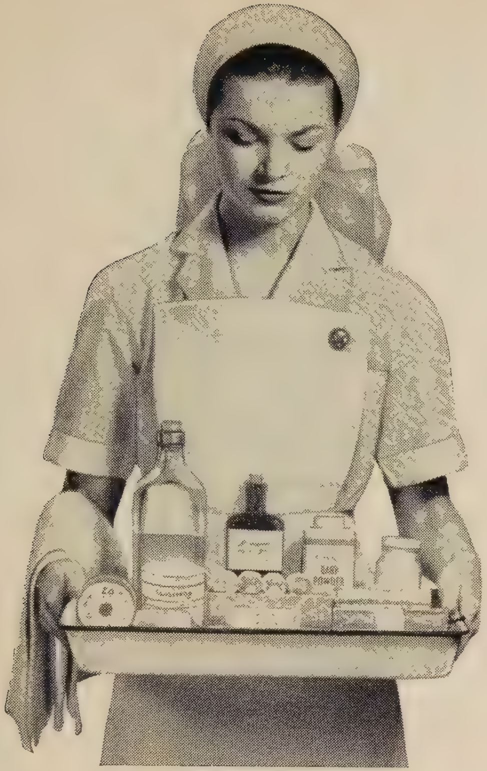
Ministry of Health ... ... Report for 1957. Part II 717
Medical Officer ... ... Public Health Functions in Greater London 717
Ewan ... ... School Health Service 718
Health Education J. ... ... History of Health Education 719
Central African J. of Med. ... 1st and 2nd Reports of Planning Committee of University College of Rhodesia and Nyasaland on Desirability and Practicability of establishing Medical School 720
Kilpatrick ... ... Growth of Organization for Preventive Medicine 721

MATERNAL AND CHILD HEALTH

Salber, Stitt & Barbott ... ... Patterns of Breast Feeding. I. Factors affecting Frequency of Breast Feeding in Newborn Period 722
Deas ... ... Analyses of Intake of Welfare Foods by 5,193 Edinburgh Infants 722
Českoslov. Hyg. ... ... School Hygiene in Czechoslovakia 722
Cohen & Ahrens ... ... Chronic Lead Poisoning. Review of Experience at Children's Hospital, District of Columbia 722

HEALTH OF NURSES, STUDENTS AND HOSPITAL STAFFS

Queen's University of Belfast ... Student Health Committee. Report of Medical Officer ... 723



First choice in hospitals and homes

In hospitals throughout the world, where only the highest standards are acceptable, Johnson & Johnson's famous products are in constant daily use. For Johnson & Johnson is the largest organisation of surgical dressing manufacturers in the world, with the widest obtainable range of surgical dressings and nursing specialities of all kinds.

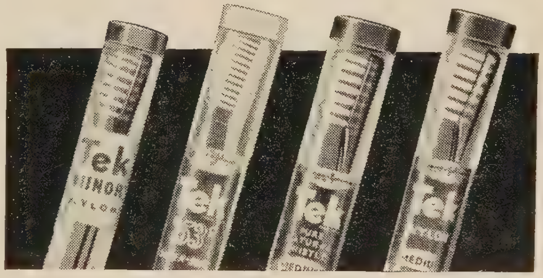
Your patients know and trust Johnson's Baby Products. The range includes every essential for a baby's care and comfort—baby powder, soap, cream and lotion and a new liquid shampoo, which cannot burn or sting the eyes.

Tek toothbrushes, also, are chosen for their outstanding quality. The range includes both nylon and bristle brushes, the super-soft Tek 53 and Tek minor, specially designed for children.

Johnson & Johnson's range of world-renowned products include:

JOHNSON'S BABY POWDER, BABY CREAM, BABY OIL, BABY SOAP, BABY SHAMPOO, BABY LOTION, BAND-AID FIRST AID DRESSINGS (ELASTIC AND PLASTIC), 'ZO' AND 'ZONAS' SPOOL PLASTERS, FIRST-AID KITS, 'ELASTIKON' ADHESIVE PLASTERS, FOOT PRODUCTS, 'MODESS' PERSONAL PRODUCTS

BABY POWDER
BABY LOTION
SOAP
BABY SOAP



SDBP/1/58

Johnson & Johnson

The World's most trusted name in Surgical Dressings and Baby Products

VITAL STATISTICS AND EPIDEMIOLOGY

		PAGE
Registrar General, England & Wales	Statistical Review of England and Wales for 1956. Part III	723

COMMUNICABLE DISEASES

Infective Diseases

Akyay	Diphtheria in Turkey and Possibilities of Eradication by Mass Immunization	725
Sutin, Benderskaia, Poliakova, Naiman, Epshtein & Fogel'son	Epidemiology of Diphtheria of Dietary Origin	725
Faerman	Treatment of Carrier State in Diphtheria with Chlortetracycline	725
D'Alò	Reinforcing Vaccination with Fluid Anatoxin in Urgent Antidiphtherial Prophylaxis	725
Knothe & Laforet	Hygienic Regulations for Control of Carriers of Diphtheria Bacillus	726
Frykholm	Nosocomial Staphylococcal Infections in Neurosurgical Ward	726
Pollard & Perry	Haemolytic Streptococci in Maternity Unit	726
Philip, Reinhard & Lackman	Mumps Epidemic in "Virgin" Population	726
Ortel	Results and Experiences with Mumps Complement-Fixation Test	726
Szathmáry & Holik	Specificity of Vaccinia Haemagglutination-Inhibition by Cerebrospinal Fluid	727
Alivisatos & Violaki-Paraskeva	Duration of Viraemia after Vaccination and Smallpox	727
Bull. World Health Organization	Influenza	727
Blair, Brown, Caldwell, Clarke, Dunn, Primrose, Stewart, Grist & Sommerville	Influenza Studies in General Practice in Glasgow Area	729
McWilliam	Antibodies to Asian Influenza and Influenza B: Edinburgh, 1958	729
Vojtová	Influenza in Region of Jihlava in Winter 1957	729
Mark	Pathology of 1957 (Asian) Influenza	729
Galloway & Miller	Lung Changes in Recent Influenza Epidemic	729
De Baan	Pulmonary Changes in Asian Influenza	729
Beswick & Finlayson	Renal Lesion associated with Influenza	730
Herzog, Staub & Richterich	Gas-Analytical Studies in Severe Pneumonia. Observations during 1957 Influenza Epidemic	730
McEwan	Dilacol in Common Cold	730
Fraser & Hatch	Outbreak of Adenovirus Infection in Portsmouth Naval Command, 1958	730
Chanock, Vargosco, Luckey, Cook, Kapikian, Reichelderfer & Parrott	Association of Haemadsorption Viruses with Respiratory Illness in Childhood	730
Parrott, Vargosko, Luckey, Hyun Wha Kim, Cumming & Chanock	Clinical Features of Infection with Haemadsorption Viruses	731
Sayman, Gauld, Star & Allen	Safety of Liquid Plasma—a Statistical Appraisal	731
Soušek	Anicteric Course of Infective Hepatitis	731
Fois & Vedovini	Infectious Mononucleosis	731
Dick	Epidemiology of Poliomyelitis	732
Canalis, Ferro, Bottacin & Franco	Epidemic of Poliomyelitis in Closed Community for Infants	732
Brutsaert	Poliomyelitis in Belgian Congo	732
Gear	Epidemiology of Poliomyelitis in Africa	732
Ranzenhofer, Lipton, Dizon & Steigman	Virus Studies in Acute Aseptic Meningitis and Poliomyelitis in Louisville, 1956–8	733
Sommerville	Poliovirus Type I isolated from a Budgerigar	733
Dane, Dick & Donaldson	Budgerigars and Poliomyelitis	733
Galpine	Some Diagnostic Problems surrounding Poliomyelitis	733
Riley & Batson	Poliomyelitis Problems in Post-Vaccine Era	734
Celers, Drouhet, Schwartz & Soulé	Immunological Studies on Poliomyelitis. III. Factors Connected with Acquisition of Antibodies	734
Salk	Poliomyelitis Vaccine Preparation and Administration. Analysis of Basic Premises and Current Practices	734
Molner, Brody & Agate	Detroit Poliomyelitis Epidemic, 1958	735
Žaček, Vonka, Adam & Adamová	Antibody Response in Children vaccinated with Poliomyelitis Vaccine injected in Different Ways	735
Perkins, Yetts & Gaisford	Response of Infants to Third Dose of Poliomyelitis Vaccine given 10–12 Months after Primary Immunization	735

ALLWIN INVALID CHAIRS

ALLWIN
THE TRANSIT CHAIR

This is one item from a wide range of Invalid Carriages including Car Chair, Commode Chair, Standard Chair and Travaux Chair. Please send for a comprehensive catalogue.

RICHARDS SON & ALLWIN LTD.
GREAT BRIDGE, TIPTON, STAFFS
Telephone: Tipton 1206/7 *Telegrams: Sidway, Tipton.*

Silence is Golden!

TRUVOX

FLOOR POLISHER/SWEEPER

Specially designed for
HOSPITAL USE

Rectangular shape for close work into corners and skirting boards. Silent induction motor. Contra-rotating horizontal brushes maintain polishing pressure approximately twice that of most polishing machines, yet works by one hand control. Collects surface dust. Built-in transit wheels.

Send for full details:
TRUVOX LIMITED
NEASDEN LANE, LONDON, N.W.10
Telephone: Gladstone 6455

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE
ATMOSPHERIC POLLUTION
OCCUPATIONAL PSYCHOLOGY
PHYSIOLOGY AS APPLIED TO HYGIENE
HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER)
including Index 30/- ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET LONDON W·C·1 *TELEPHONE: MUSeum 3041*

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

PAGE

Perkins, Yetts & Gaisford ... Comparison of Responses of 100 Infants to Primary Poliomyelitis Immunization with 2 and with 3 Doses of Vaccine ... 736
Medical Research Council ... Antibody Response of Adolescents and Adults to Booster Dose of Poliomyelitis Vaccine ... 736
Knowelden ... Present Situation with Formalin-Killed Poliomyelitis Vaccine 737
Dick & Dane ... Live Poliomyelitis Vaccine ... 737
Buser & Schär ... Poliomyelitis Vaccination with Live Avirulent Virus ... 737
Fowden ... Sensitivity to Penicillin in British Poliomyelitis Vaccine ... 738
Liu, Carter, Sanders, Smith & Hampil ... Serotherapy of Poliomyelitis in Rhesus Monkeys ... 738
Gordon, Lennette & Sandrock ... Varied Clinical Manifestations of Coxsackie Virus Infections; Outbreak in California ... 738
St. Geme, Prince, Scherer & Krivit ... Exanthem due to Echo Virus Type 9 ... 739
Aitken & Anderson ... Virus Transmission Studies with Trinidadian Mosquitoes ... 739
Izotov & Baroian ... Detection of Virus of Tick-Borne Encephalitis by Fluorescence and Electrophoresis ... 739
Fedorov, Igolkin & Tiushniakova Virus-Carrying Fleas in Areas of Tick-Borne Encephalitis and Lymphocytic Choriomeningitis ... 739
Masi, Timothee & Armijo ... Water-Borne Outbreak of Typhoid Fever ... 739
Sobol ... Rheumatic Endocarditis complicated by Typhoid ... 740
Steinmetz ... Typhoid Fever obscured by Inadequate Chlortetracycline Therapy ... 740
Shearer, Browne, Gordon & Hollister ... Discovery of Typhoid Carrier by Sewage Sampling ... 740
Polanetzki & May ... Duration of Excretion of Enteritis Bacteria by Carriers ... 740
Humbert ... Diagnosis and Treatment of Chronic Salmonella Excreters 740
Barr, Sayers & Stamm ... Intradermal TABT Vaccine for Immunization against Enteric ... 741
Shih ... Use of Concentrated Typhoid Vaccine for Intradermal Immunization ... 741
Colichón & Arana Sialer ... Shigellosis in Peru ... 741
Riera Zubillaga *et al.* ... Enteritis in Children under 2 Years Old ... 742
Takikawa ... Pathogenic Halophilic Bacteria ... 742

Tuberculosis

Chest & Heart Ass. ... Chest and Heart Disease in Commonwealth 1958 ... 743
Riley ... Tuberculosis in Hospital Nurses ... 743
Fraser ... Significant Primary Pulmonary Tuberculosis in Young Contacts ... 744
Bojlen ... Tuberculosis Investigations in School Environment ... 745
Ashworth & Van Der Walt ... Transkei Mission Hospital Practice: Incidence of Disease with special reference to Tuberculosis ... 745
Custer ... Pilot Study of Tuberculin Test for Case Finding in General Hospital ... 746
Cheung ... Comparison of Mantoux and Heaf Tuberculin Tests ... 746
O'Grady ... Erythema Component of Primary Mantoux Response ... 746
O'Grady ... Changes in Erythema as Index of Sensitization and Activation ... 747
Mestitz & Pollard ... Diagnosis of Tuberculous Pleural Effusion ... 747
Hulse ... Laryngeal Tuberculosis ... 748
Breathnach ... Conservative Treatment of Primary Tuberculosis in Children 748
Smart & Gough ... Treatment of Pulmonary Tuberculosis with Prolonged Streptomycin, Sodium P-Aminosalicylate and Isoniazid ... 748
Jeker, Lauener, Regli & Friedrich ... Tolerability of Calcium Benzoyl-PAS and Calcium PAS ... 748
Eloy ... Treatment of Pulmonary Tuberculosis with Dipasic ... 749
East Africa ... Comparative Trial of Isoniazid in combination with Sulphone or PAS in Treatment of Acute Pulmonary Tuberculosis in East Africans ... 749
Viallier & Cayré ... Antituberculous Activity *in vitro* of Dihydrostreptomycin Salt of Sulphoniazid ... 749
Doy, Dixson & Rubbo ... Chemotherapy of Tuberculosis. IV. Stability of Hydrazones of Isoniazid in Biologic Fluids ... 749
Haber & Osborne ... Icterus and Febrile Reactions in Response to Isonicotinic Acid Hydrazine ... 750
Merritt & Fetter ... Toxic Hepatic Necrosis due to Isoniazid ... 750
Macleod, Hay & Stewart ... Use of Pyrazinamide Plus Isoniazid in Treatment of Pulmonary Tuberculosis ... 750

COMMUNICABLE DISEASES—*cont.*

Tuberculosis—*cont.*

PAGE
De Leon & Lopez ... Cycloserine in Treatment of Advanced Pulmonary Tuberculosis ... 750
Weinstein & Koler ... Adrenocorticosteroids in Treatment of Tuberculosis ... 750
Turner ... Effects of Prednisolone on Chronic Drug Resistant Pulmonary Tuberculosis in Kenya Africans ... 751
Nodine, Yoshizawa, Weiss, Stein, Guth & Tummillio ... Effect of L-Triiodothyronine in Pulmonary Tuberculosis ... 751
Arblaster, McWhinney, Smith & Cross ... Medical Treatment as Alternative to Thoracoplasty in Pulmonary Tuberculosis ... 751
Drew & O'Rourke ... Future of Thoracoplasty in Pulmonary Tuberculosis ... 752
Ronald & Stitt ... Effect of Adequate Long-Term Chemotherapy on Relapse in Pulmonary Tuberculosis ... 752
Szulkin & Ostrowska ... State Control in Poland of Lyophilized BCG Vaccines ... 752
Béthoux & Duny ... Oral BCG Vaccination with Large Doses of Vaccine ... 752
Gervois & Lebeurre ... Avoidance of Gland Abscesses after BCG Vaccination ... 753
Hinden ... Fatal Miliary Tuberculosis in Immunized Child ... 753

Venereal Diseases

Soquel, Hosking, Montgomery & Laurentz ... Epidemiological Study of Infectious Syphilis ... 754
Castets ... Serology of Syphilis in Africans in Dakar ... 754
Koschucharoff ... New Technique for Original Wassermann Reaction with Small Amounts of Peripheral Blood ... 754
Schneeweiss ... More Recent Experimental Findings in respect of Serological Diagnosis of Syphilis ... 755
Berlinghoff ... Modern Serological Diagnosis of Syphilis and its Significance for Clinician ... 755
Harris, Bossak & Wallace ... Serological Preselection for *Trep. pallidum* Immobilization Test ... 756
Tani, Matsubara, Ito & Nakamura ... Improvement of Techniques for *Trep. pallidum* Agglutination Test ... 756
Plagnol ... Blood Proteins and Syphilis in African Mothers and Babies in Dakar ... 756
Ward & Read ... Prognosis in Syphilitic Aortic Aneurysm after Treatment with Penicillin ... 756
Ikejiani ... Gonococcal Meningitis ... 757
Epstein ... Failure of Penicillin in Treatment of Acute Gonorrhea in American Troops in Korea ... 757
Marmell & Prigot ... Tetracycline Phosphate Complex in Treatment of Acute Gonococcal Urethritis in Men ... 757
Marmell & Prigot ... Tetracycline with Glucosamine in Treatment of Gonorrhea in Male ... 757
Marmell & Prigot ... Use of Tetracycline Phosphate Complex in Venereal Disease Clinic ... 757
Depoorter ... Significance of Urethritis due to *T. vaginalis* in Female ... 758
Willcox ... Treatment of Vaginal Thrush with Gyno-Sterosan ... 758

Other Communicable Diseases

Lanzo ... Prednisone in Treatment of Tetanus ... 758
Ackland ... Tetanus Prophylaxis ... 758
Wiener, Patterson & Mackenzie ... Persistence of Tetanus Antitoxin in Children 2 Years after a Third Dose of Tetanus Toxoid ... 758
Lebedev ... Routes of Infection of Man with Haemorrhagic Nephroso-Nephritis in Yaroslavl Oblast ... 758

Zoonoses

Kendall ... Occupational Anthrax in U.S.A. ... 759
Khaikina ... Detection of Bacterial Antigen in Blood of Brucellosis Patient ... 759
Trever; Cluff; Peeler; Bennett; Imboden; Canter ... Brucellosis. I. Laboratory-Acquired Acute Infection. II. Medical Aspects of Delayed Convalescence. III. Psychological Aspects of Delayed Convalescence ... 759
Zammit ... Undulant Fever Spondylitis ... 760
Widdicombe, Hughes & May ... Physical Changes in Lungs during Respiratory Infection with *Br. suis* ... 760
Van Metre & Kadull ... Laboratory-Acquired Tularaemia in Vaccinated Individuals ... 760
Melzer ... Epidemiological and Clinical Aspects of Ornithosis ... 761
Baylet, Gilbert-Desvallons & Le Treut ... New Case of New-Rickettsial Disease in French West Africa ... 761

DISEASES DUE TO FUNGI

		PAGE
Conn, Crean, Maccabe & Maclean	Systemic Candidiasis & Endocarditis due to *C. Tropicalis*	761
Nityananda	Monilial Granuloma	762
Childs	Further Clinical Trials of Amphotericin with Report on Treatment of Probable Case of Generalized Moniliasis	762
Ohlwiler & Bricker	*C. albicans* Peritonitis successfully treated with Amphotericin B	762
Noguchi & Kato	Effect of Sodium Ethylmercurithiosalicylate on Succinic Dehydrogenase of *C. albicans* and its Clinical Use in Dermatomycoses	762
Blankenberg & Verhoeff	Mucormycosis of the Lung	762
Das-Gupta; Shome	Medical Mycology. I. Occurrence of Mycotic Diseases in Lucknow. II. Candidiasis of Scalp	763
Pardo-Castello & Trespalacios	Superficial and Deep Mycoses in Cuba	763
Polemann	Dermatophytosis caused by *Microsporum gypseum*	763
Quenum-Ahina	Histoplasmosis due to African Large Form of Parasite	763
Aronson & Edwards	Urban Focus of Histoplasmin Sensitivity	763
Heiner	Diagnosis of Histoplasmosis by Precipitin Reactions in Agar Gel	764
Björkman, Frisk, Nordenstam & Norhagen	Generalized Histoplasmosis	764
Hurwitz & Pastor	Pericardial Calcification associated with Histoplasmosis	764
Utz, German, Louria, Emmons & Bartter	Pulmonary Aspergillosis with Cavitation	764
Littman & Schneierson	*Cryptococcus neoformans* in Pigeon Excreta in New York City	764
Anderson & Beech	Serological Tests for Early Diagnosis of Cryptococcal Infection	765

RHEUMATIC DISEASES

Ogburn, Harris & Harris	Determination of Streptococcal Antiproteinase Titres in Sera of Patients with Rheumatic Fever and Streptococcal Infection	765
Mortimer, Vaisman, Vignau, Guasch, Schuster, Rakita, Krause, Roberts & Rammelkamp	Effect of Penicillin on Acute Rheumatic Fever and Valvular Heart Disease	765
Johnson, Mathews & Stollerman	Use of Weekly Oral Doses of Sulphamethoxypyridazine for Rheumatic Fever Prevention	766

HEART DISEASE

Karvonen, Orma, Keys, Fidanza & Brozek	Cigarette Smoking, Serum-Cholesterol, Blood-Pressure, and Body Fatness	766

CANCER

Leguérinais, Denoix & Maujol	Evolution of Cancer Mortality in Different Countries	767
Kirchoff & Rigdon	Cancer of the Lung—the Sex Ratio	767
Cornfield, Haenszel, Hammond, Lilienfeld, Shimkin & Wynder	Smoking and Lung Cancer	767
Gyurech-Vágó & Scherrer	Relationship Between Chronic Bronchitis and Bronchial Carcinoma	768
Stocks	Air Pollution and Cancer Mortality in Liverpool Hospital Region and North Wales	768
Commins	Polycyclic Hydrocarbons in Rural and Urban Air	769
Gorham	Correlation of Lung Cancer with Tar in Air Pollution	769
Polydorová	Attempt to determine Retention of Tobacco Smoke in Lungs by means of Membrane Filters	769
Sciarini & Meigs	Biotransformation of Benzidine (4,4′-Diaminobiphenyl), an Industrial Carcinogen, in the Dog	770

MISCELLANEOUS DISEASES

St. George-Grambauer	Diseases of Laboratory Mice	770

DENTAL HYGIENE

Verbraeck	Dental Caries in Inhabitants of Congo River Basin	770

MENTAL HYGIENE

PAGE

Herd & Shaddick ... Mental Illness ... 770
Lowry ... Community Care of the Mentally Ill ... 771

OCCUPATIONAL HYGIENE

Ministry of Labour & National Service ... Annual Report of Chief Inspector of Factories on Industrial Health for 1957 ... 772
Rejsek ... Occupational Diseases of Medical Personnel ... 772
Royal Soc. Promotion Health J. Health of Workers in Non-Industrial Premises. (a) Gowers Report (b) Forgotten Army ... 772
Grandjean ... Physiological Investigations of Fatigue in Female Telephonists and Office Workers ... 773
Goethe, Rinck & Gudmundsson ... Sickness in German Deep Sea Fishermen with reference to Dentition ... 773
Friemann, Overhoff & Wolter ... Diseases of the Eye in Fishing Industry ... 773
Bugyi ... Coniomycosis of Rice Workers ... 774
Storlazzi ... Hygiene of Welding in U.S. Naval Shipyards ... 774
Milic-Emili & Petit ... Limits of Pulmonary Ventilation during Exercise in Patients with Cardio-Respiratory Insufficiency ... 775
Sadoul, Metz & Saunier ... Functional Tests in Diagnosis and Treatment of Chronic Bronchitis ... 775
Miura & Kimura ... Hazardous Dust in Foundry Work ... 775
Hamlin ... Siderosis ... 775
Pascal & Werner ... Formation of Cristobalite from Moulding Clay ... 776
Sander ... Newer Concepts of Pathogenisis of Pneumoconioses ... 776
Magistretti, Sartorelli & Tomasini ... Pulmonary Haemodynamics in a Pneumectomized Silicotic Subject ... 776
Sawada ... Roentgenological Studies on Progress of Simple Silicosis ... 777
Morrow & Staskiel ... Pneumoliths in Profusion in Silicosis ... 777
Freour, Laumonnier, Léger, Hirsch & Salaun ... Case of Silicosis Recognized after Long Delay and finally diagnosed by Lung Biopsy ... 777
Nozaki & Sawada ... Progress of Simple Silicosis after Patients quitting or changing Jobs ... 777
Sato, Sato, Matsuoka, Inagaki, Kajita, Takizawa & Haseyama ... 6 Autopsy Cases of Primary Bronchial Carcinoma complicated with Pulmonary Silicosis ... 777
Jahr ... Silicosis in Overseers of Baths ... 778
Thieblot, Champeix, Lavarenne & Teulade ... Treatment of Silicosis by Calcium E.D.T.A. ... 778
Antweiler & Hirsch ... Further Experiments on Animals to study problem of Antibody Formation in Case of Silicosis ... 778
Lupu & Velikan ... Problem of Pneumoconiosis ... 779
Giubileo & Parmeggiani ... Comparative Study on Determination of HbCO and CO extractable from Blood ... 779
Hasselt: Institut D'Hygiène des Mines ... Oxyhaemoglobin Saturation and Partial Pressure of CO_2 at Rest and after Exercise in Coalworkers' Pneumoconiosis 779
Dalloz, Perrin & Rabault ... Comparison of Results of Pulmonary Ventilation Measurements with Actual Performance of Miners at Work ... 780
Sadler ... Sputum-Positive Coalworker's Pneumoconiosis and Drug Therapy ... 780
Takácsy, Bordás & Timár ... Connective Tissue Changes caused in Guineapigs by Quartz, Quartz-Containing Dead Rock, Brown-Coal and Talc ... 780
Gross, Westrick & McNerney ... Experimental Tuberculopneumoconiosis ... 781
Schmidt & Lüchtrath ... Effect of Raw and Calcined Kaolin on Lung and Peritoneum of Rats ... 781
Dünner & Hardy ... Pneumoconiotic and Non-Pneumoconiotic Lung Lesions due to inhaling Dust and SO_2 Fumes from burning Coke ... 782
Maranzana ... Pneumoconiosis in Cement Workers ... 782
Champeix & Moreau ... Recent Observations on Pneumoconiosis due to Ochre Earths 782
Dünner, Hardy, Nakielny, Robinson & Smart ... Pneumoconiosis in Grain Workers, Oil and Flour Millers ... 783
Schilling ... Epidemiology of Byssinosis ... 783
Herrmann ... Dust Measurements in Workplaces ... 783
Hasselt: Institut D'Hygiène des Mines ... Long-Period Dust Sampling in Colliery. 2. Validity of British Konimeter Measurements ... 783
Roeber ... Measurement of Fine Dust ... 784
Friedrich ... Determination of Fineness of Technical Dusts ... 784
Roeber ... Photometric Evaluation of Deposits of Fine Dust ... 784
Rammler & Bauerfeind ... Dust Measurement in Lignite Briquette Plants ... 784
Dawes & Maguire ... Calculation of Relationships between Particle Number, Area and Weight Concentration in Coal-Mine Dust Clouds 784

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Hasenclever	Testing Filters for Use with Radio-active Aerosols	784
Walkenhorst	Performance of Membrane Filters against Aerosols Containing Particles Smaller than 0·1 Micron	785
Zehr	Experimental Measurement of Upper Ignition Limit of Dust-Air Mixtures in Relation to Evaluation of Dust Explosion Dangers	785
Mössmer	New Exhauster Hood for Stone Cutters	785
Barth	Fundamental Investigations on Cleaning Capacity of Water Drops	785
Lead Industries Ass.	Lead Hygiene Conference, 1958	785
Hadengue & Lamberton	Accidental Lead Poisoning	786
Waldman & Borman	Serum Transaminase Activity after Lead Absorption	786
Verbanck, Toussaint, Toppet, Bastenier, Deslypère & Degraef-Millet	Metabolic Effects of CaEDTA in Latent Lead Poisoning	787
Fried, Lindenbaum & Schubert	Comparison of 3 Chelating Agents in Treatment of Experimental Manganese Poisoning	787
Cash, Shapiro, Levy & Hopkins	Chelating Agents in Therapy of Beryllium Poisoning	787
Truhaut, Paoletti, Boiron & Tubiana	Toxicology of Benzene. Modifications of Erythropoiesis followed by Use of Radioactive Iron	788
Friebel & Stein	Asthma Induced by Simple Chemicals: Experiments with p-Phenylenediamine	788
Henson	Toxicology of some of Aliphatic and Alicyclic Hydrocarbons	788
Finulli & Ghislandi	Incidence of Diabetes on Chronic Carbon Disulphide Poisoning	789
Michalová, Bartoníček & Zástava	Toxic Action of Carbon Disulphide on Tissues	789
British Med. J.	Carbon-Monoxide Poisoning. Use of Carbon-Dioxide-Oxygen Mixture	789
Saita	Factors of Prothrombinic Complex in Acute Poisonings after Inhalation	789
Roush	Toxicology of the Boranes	790
Yee, Fosdick & Bourne	Nitroglycerin and Nitroglycol Exposure in Explosive Plant	790
Beneš & Černá	Acute Toxicity and Action of Acrylonitrile	791
Burkatzkaya, Ivanova & Krasnyuk	Labour Hygiene and Health of Workmen engaged in Production of Insecticides containing Hexachlorane	791
Shirakawa	Toxicity of Benzene Hexachloride (BHC) and Dichlorodiphenyltrichloroethane (DDT). II. Toxicity Tests by Dust Inhalation of Insecticides to Laboratory Animals. III. Histopathological Study	791
Apte, Khandetod & Verkey	Diazinon Poisoning	792
Gnoevaya, Krilova & Russkikh	Assessment of New Insecticide—Methylethylthiophose from Standpoint of Food Hygiene	792
Petty, Hedmeg, Reinhart, Moore & Dunn	Organic Phosphate Insecticides	792
Murphy, Anderson & Dubois	Potentiation of Toxicity of Malathion by Triorthotolyl Phosphate	792
Hobbiger, O'Sullivan & Sadler	New Potent Reactivators of Acetocholinesterase inhibited by Tetraethyl Pyrophosphate	792
Fournel	Protective Effect of Pyridine Aldoxime Methiodide in Experimental Poisoning by Organo-phosphorus Compounds	793
Davies, Green & Willey	2-Hydroxyiminomethyl-*N*-Methylpyridinium Methanesulphonate and Atropine in Treatment of Severe Organophosphate Poisoning	793
Fradà & Gucciardi	Effects of Neuroplegic Drugs in Experimental Phosphoric Esters Poisoning	793
Grosdanov	Occupational Eczemas and Inflammation of Skin by Caterpillars of Species *Plodia interpunctella*	794
González Benavides	Sporotrichosis as Occupational Disease in Potteries	794
Holzmann	"Pigeon-Eyes"-like Skin Alterations in Subjects occupied in Tin Industry	794
Ippen	Occupational Alterations of Skin by Phenothiazine Derivatives	794
Kile & Quigley	Skin Eruptions of Workers in Uranium-Processing Plant	795

ATMOSPHERIC POLLUTION

Dept. Scient. & Indust. Res.	Atmospheric Pollution	795
Foitzik	Composition and Optical Characteristics of Natural Atmospheric Dust	796
Effenberger	Comparison of Different Dust Measuring Devices	796

ATMOSPHERIC POLLUTION—*cont.*

		PAGE
JENEY & SZENDREY	Detection of Metallic Contaminants in Air by means of Paper Chromatography	796
ROYAL SOC. PROMOTION HEALTH J.	Chronic Bronchitis and Air Pollution	796
	Bronchitis and Air Pollution	796
WILDFÜHR	Air Pollution in Large Cities	797

SANITATION

General

THOMSON & BROWN	Sanitary Accommodation on Building Sites	798

Water and Swimming Baths

ETINGER-TULCZYNSKA	Effect of Various Water Bacteria on Growth of *E. coli* I in MacConkey's Broth at 37° and 42°	798
ECKER & LOCKHART	Rapid Membrance Filter Method for Direct Counts of Micro-organisms from Small Samples	798
MEYER	Determination of Salmonella Quotient in Bacteriological Examination of Water	798

FOOD AND NUTRITION

General

MULDER	Food in the Netherlands	799
VOEDING	Nutrition and Nutritional State of School Children in 10 Large Cities in 1951 and 1952	799

Foodstuffs

MORAN	Nutritional Significance of Recent Work on Wheat, Flour and Bread	799
LEALI	*E. coli* Detection in Milk	800
MINISTÈRE DE LA SANTÉ PUBLIQUE	Destruction of Bacteria by Heat: Study of Efficacy of Pasteurization of Milk	800

BACTERIOLOGY AND IMMUNITY

General

MINISTRY OF HEALTH. CENTRAL HEALTH SERVICES COUNCIL ...	Staphylococcal Infections in Hospitals	801
BRINTON	Non-Flagellar Appendages of Bacteria	801
RAPPAPORT, RABINOVITZ & KONFORTI	Improved Method for Preparation of Sulphur and Iron containing Differentiation Media	802
WERTMAN & GROH	Effects of Thiamine Deficiency on Some Physiologic Factors, Phagocytosis and Susceptibility to Infection	802

Bacteriostatic and Bactericidal Substances; Disinfection

SCHNEIERSON & AMSTERDAM ...	Simplified Tube Procedure for Routine Determination of Bacterial Sensitivity to Antibiotics	803
LINDENMANN	Theory and Practice of Sensitivity Tests	803
GOODIER & PARRY	Sensitivity of Clinically Important Bacteria to 6 Common Antibacterial Substances	803
LÁZÁR	Contributions to Problem of Antibiotic-Antagonism ...	803
OSKAM & KOELMAN	Antagonism and Potentiation of Some Antibiotics associated by Pairs	804
ZWART VOORSPUIJ & BOKMA ...	Simultaneous Action of 2 or More Antibacterial Agents. Action of Combination Nitrofurantoin-Chloramphenicol-Erythromycin on *Pr. vulgaris*	804
ZABŁOCKI, ROLICKA & SZYDŁOWSKI	Inactivating Properties of Antibodies against Antibiotics *in vitro*	804
WEISS, NADEL, EISENBERG & FLIPPIN	Oral Penicillin G and Penicillin V	804
LUTZ	Experimental Data on Phenyracillin and its Association with Dihydrostreptomycin	805
OLITZKI & GODINGER	Investigation on Streptomycin Inhibitors with Aid of Streptomycin-Dependent *V. comma*	805
EISENBERG, WEISS & FLIPPIN ...	Effect of Ethylenediaminetetraacetic Acid (EDTA) and Ascorbic Acid on Tetracycline Blood Serum Concentrations	805
SENSI & TIMBAL	Isolation of 2 Antibiotics of Grisein and Albomycin Group	805
MORDARSKI, WIECZOREK & KRZYWY	WR 3/17, a New Antibiotic. 1. Discovery and Biological Studies	805

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances; Disinfection—*cont.*

PAGE

Ciak & Hahn ... Mechanisms of Action of Antibiotics. II. Modes of Action of Cycloserine and its L-Stereoisomer ... 806
Thompson & O'Grady ... Rapid Screening of Antifungal Agents for *in vivo* Activity 806
Higo ... Antiviral Antibiotics produced by *Streptomyces*. XI. Effect of Phagostin on Multiplication of Bacteriophage T3 ... 806
Gerber, Dutcher, Adams & Sherman ... Protective Effect of Seaweed Extracts for Chicken Embryos infected with Influenza B or Mumps Virus ... 806
Cawson & Curson ... Effectiveness of Some Antiseptics on Oral Mucous Membrane 806
Adams, Fahlman, Dube, Dube & Read ... Control of Infections within Hospitals ... 807
Hudson, Sanger & Sproul ... Effective System of Bactericidal Conditioning for Hospitals 807
Medical Research Council ... Sterilization by Steam under Increased Pressure ... 807
Penikett, Rowe & Robson ... Vacuum Drying of Steam Sterilized Dressings ... 808
Public Health Lab. Service ... Practical Aspects of Formaldehyde Fumigation ... 808

Individual Bacteria

Silliker & Taylor ... Isolation of Salmonellae from Food Samples. II. Effect of Added Food Samples upon Performance of Enrichment Broths ... 808
Nicolle, Diverneau & Brault ... Complementary Phage-typing Scheme for *Salm. typhi* Type A and Lysogenicity of Sub-types ... 809
Feeley, Sword, Manclark & Pickett ... Use of Formalin-Preserved Erythrocytes in Enterobacterial Haemagglutination Test ... 809
Lambin, German & Sigrist ... Influence of Lyophilization on Constituents and Antigenic Power of *Salm. typhi* and *Salm. paratyphi B* ... 809
Bensted ... Colony Variation and Mouse Virulence of Typhoid Bacilli 809
Hirsch & Hornstein ... Effect of Chloroform Vapours on Vi Antigen and on O Resistance of *Salm. typhi*, and Application of this Effect to Plate Agar Cultures ... 810
Jude ... Action of O and Vi Antigens in Immunization of Mice against *Salm. typhi* ... 810
Landy ... Immune Response of Mouse to Vi Antigen ... 810
Rappaport & Konforti ... Selective Enrichment Medium for Paratyphoid Bacteria. Inhibitory and Growth Promoting Factors ... 810
Mandel, Baron & Buckler ... Role of Vi Antigen in *Salm. paratyphi* C Infections ... 811
Gerichter, Evenchik & Silberstein ... Effect of Storage Temperature on Potency of TAB Vaccine 811
Hughes ... Salmonella Infections in Accra, Ghana, West Africa ... 811
Browning, Moore & Stevenson ... New *Salmonella* Type: *Salm. Glasgow* ... 811
Carpenter & Lachowicz ... Catalase Activity of *Sh. flexneri* ... 812
Robbins, Parr & Hann ... Coliform-*Shigella* Antagonism in Faecal Cultures among Isolates from Residents of 2 Egyptian Villages ... 812
McKay & Smith ... Small Outbreak of Neonatal Meningitis in Maternity Unit 813
Brody, Moore & King ... Meningitis caused by Unclassified Gram-Negative Bacterium in Newborn Infants ... 813
Soman & Patel ... Comparison of Toxigenicity Tests of *C. diphtheriae* by 3 Different Methods ... 813
Kuhns, Masouredis & Swabey ... Characterization of Complexes which contain Diphtheria Toxin and Human Nonprecipitating Antitoxin ... 813
Tinne ... Methylene Blue Medium for distinguishing Virulent Mycobacteria ... 813
Wechselberg ... *In vitro* Studies on Effect of Oils Extracted from *Tropaeolum maius*, *Cochlearia armoracia* and *Allium sativa* on Growth of Tubercle Bacteria ... 814
Nutter, Gemmill & Myrvik ... Influence of 3,3^1,5-Triiodo-L-Thyronine on Survival Time of Mice with Tuberculosis and Pneumococcosis ... 814
Kitazawa & Ohta ... Influence of Antimicrobial Drugs on Allergic Reaction to Reinfection Tuberculosis in Rabbits ... 814
Frappier, Portelance & St.-Pierre Some Biological Properties of Mycobacteria after Extraction of Lipids. Power to initiate Acquired Resistance ... 814
Carpenter, Naylor-Foote, Taplin, Lawrence & Drake ... Vaccines prepared from Gamma-Irradiated *Myco. tuberculosis* and *Br. suis* ... 815
Patnode & Hudgins ... Sonic Fragility of Leukocytes from Guineapigs vaccinated with BCG ... 815
Affronti ... Purified Protein Derivatives (PPD) and Other Antigens prepared from Atypical Acid-Fast Bacilli and *Nocardia asteroides* ... 816
U.S. Pub. Health Service ... Proceedings of National Conference on Hospital-Acquired Staphylococcal Disease ... 816

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Butler	Preparation and Isoelectric Point of Staphylococcal α-Haemolysin	817
Hlava & Maršálek	Pathogenicity of Staphylococci	818
Jeljaszewicz	Some Experiments in Staphylocoagulase. I. Methods of Determination of Free and Bound Coagulase	818
Lidwell	Apparatus for Phage-Typing of *Staph. aureus*	818
Zak	Adsorption of Staphylococcal Bacteriophages on Bacteriological Filters	818
Kienitz & Preuner	Demonstration of Staphylococcus Enterotoxin. III. Action of Staphylococcus Enterotoxin on Chick Embryos ...	819
Jackson, Gibbons & Magner ...	Effects of Staphylococcal Toxin on Lungs of Rabbits ...	819
Grün	Relations of Pigment Production, Resistance to Antibiotics and Antigen Structure in Pathogenic Staphylococci ...	819
Fischer	Incidence of Penicillin-Resistant Staphylococci	819
Collard & Harris	Antibiotic Sensitivity of *Staph. pyogenes* in Urban Nigerian Community	819
Spitzbart	Resistance to Antibiotics and Sulphonamides and Biochemical Reactions of Organisms Causing Mastitis ...	819
Imšenecki, Perova, Zaizeva & Belosersky	Transmission of Streptomycin Resistance in Staphylococci by means of DNA	820
Beckett, Vahora & Robinson ...	Interaction of Chelating Agents with Bacteria. I. 8-Hydroxyquinoline (Oxine) and *Staph. aureus*	820
Janovics	Experimental Immunization of Rabbits with Staphylococcus Toxoid by Oral and Nasal Routes	820
Hakim	Enzymically Active Proteins from Streptococcal Cells: I. Fractionation and Specificity	820
Palva & Kaipainen	Sensitivities of Beta-Haemolytic Streptococci. Follow-Up Studies with Scarlet Fever Patients treated with DBED-Penicillin or Tetracycline	821
Perelli	L Forms of *Diplococcus pneumoniae*	821
Léon & Cano	Artificial Antigen prepared from Polysaccharides extracted from *Br. melitensis*	821
Tuskiewicz	Incomplete Antibodies during Brucella Infections	821
Olitzki & Godinger	Influence of Pentoses on Oxygen Uptake of Haemophilus Strains	821
Vainer, Faur, Tigoiu & Ionesco ...	Preparation of *H. pertussis* Vaccine	822
Kind	Altered Reactivity of Mice after Inoculation with *H. pertussis* Vaccine	822
Thayer, Field & Garson	*In Vitro* Susceptibility of *N. gonorrhoeae* to Action of Sulphamethoxypyridazine and Sulphadiazine	822
Doak, Freedman & Clark	Ionic Requirements of *Trep. pallidum.* I. Sodium and Potassium	823
Myerson, Wolfson & Sall ...	Cultivation and Morphology of Micro-organism from Cerebrospinal Fluid of Patients with Multiple Sclerosis	823
Van Riel & Van Riel	Simple Method for Staining Leptospires	823
Albrycht & Trembowler	Influence of some Factors present in Nutrient Media on Sporulation of *Cl. welchii*	823
Moussa	Antigenic Formulae for *Cl. septicum* and *Cl. chauvoei* ...	824
Public Health Lab. Service ...	Occurrence of Tetanus Spores in Materials used for Dressing Wounds	824
Work	Action of Lytic Enzyme from Spores of Bacillus on Various Species of Bacteria	824
Stamatin	Phage Transduction of Sporogenesis in *B. anthracis* ...	824

Fungi

Raubitschek	Taurocholate Agar for Chlamydospore Production by *C. albicans*	825
Tsuchiya, Fukazawa & Kawakita	Method for Rapid Identification of Genus Candida	825
Lindh	Method for Evaluation of Antifungal Drugs against Enteric *C. albicans* in Mice	825
Visco	Experimental Candidosis of Chick Embryo. I. General Characteristics of Process	825
Rodríguez	Isolation of Fungi from Soil	826
Vieu & Segretain	Study of *Geotrichum* and *Trichosporon* of Human Origin ...	826
Evans & Baker	Treatment of Experimental Aspergillosis with Amphotericin B	826
De Montemayor, Heredia Osio & De Bellard Pietri	Isolation of *H. capsulatum* in Soil of 2 Caves in Venezuela. New Technique, the "Flotation Method"	826
Salvin	Influence of Leucocytes from Sensitized Mice on Resistance to *H. capsulatum*	826

BACTERIOLOGY AND IMMUNITY—*cont.*

PAGE

Bacteriophages

Frick & Albertsson ... ... Bacteriophage Enrichment in Liquid 2-Phase System with Subsequent Treatment with "Freon" 113 827

Whitfield & Baird ... ... Nucleic Acid Synthesis by Lysogenic Strain of *E. coli* infected with rII Mutant of Coliphage T2 827

Viruses

Underwood, Siem, Gerpheide & Hunter ... ... Binding of Antiviral Agent by Various Metabolites ... 827

Holtermann, Mergenhagen & Morgan ... ... Factors related to Psittacosis Virus (Strain 6 BC) Growth. V. Folic Acid-like Factor in Infected Cells 827

Strauss & Smejkal ... ... Persistence of Ornithosis Virus in Evaluation Experiments of its Sensitivity to Penicillin and Chlortetracycline in White Mice 828

Sarateanu & Draganescu ... ... Experimental Infection of Cotton Rats with Neorickettsial Agent isolated from Case of Human Atypical Pneumonia 828

Sureau & Brygoo ... ... Culture of Vaccinia Virus. II. Culture of Virus on Monolayer Epithelial Calf Kidney Cells 828

Nagano & Kojima ... ... Inhibition of Vaccinial Infection by Soluble Factor from Tissues infected by Homologous Virus 828

Brans ... ... Preparation of Smallpox Vaccine on Calf's Skin 829

Kaplan & Vatter ... ... Comparison of Herpes Simplex and Pseudorabies Viruses ... 829

Stewart & Morgan ... ... Cytotropism in Animal Viruses. I. Growth of Influenza Virus in Lung Cells derived from Hatched Chicks and Chick Embryos 829

White & Fazekas De St. Groth ... Variation of Host Resistance to Influenza Viruses in the Allantois 829

Woodhour & Jensen ... ... Adsorption Characteristics of Influenza Viruses to Cholesterol and Fatty Acids 830

Gan & Warsa ... ... Antibacterial Activity of Allantoic Fluid of Embryonated Eggs infected with Influenza Virus 830

Clark, Isaacs & Walker ... ... Derivatives of 3:4-Xylidine and Related Compounds as Inhibitors of Influenza Virus: Relationships between Chemical Structure and Biological Activity 830

Brug, De Bock, Moed & Klein ... Antiviral Action of Derivatives of ω-Aminoacetophenone ... 830

Kaji, Oseasohn, Jordan & Dingle Isolation of Asian Virus from Extrapulmonary Tissues in Fatal Human Influenza 830

Kalter, Casey, Jensen, Robinson & Gorrie ... ... Evaluation of Laboratory Diagnostic Procedures with A/Asian Influenza 831

Jawetz, Hanna, Sonne & Thygeson Laboratory Infection with Adenovirus Type 8. 831

Pereira, Allison & Farthing ... Study of Adenovirus Antigens by Immunoelectrophoresis ... 831

Culver, Lennette, Flintjer, Stevens & Fox ... ... Adenovirus Vaccine. Study of Complement-Fixing and Neutralizing Antibody Response 831

Culver, Lennette & Flintjer ... Adenovirus Vaccine. Field Evaluation of Protective Capacity against Respiratory Disease 831

Culver, Lennette, Fox & Flintjer Long-Term Study of Antibody Response to Adenovirus Vaccine and Observations on Effect of Concurrent Adenovirus Disease 832

Chany, Robbe-Fossat & Couvreur Epidemiological Role of New Respiratory Virus EA 102 ... 832

Schultz & Habel ... ... SA Virus—New Member of Myxovirus Group 832

Mascoli, Stanfield & Phelps ... Propagation of Poliovirus, Measles and Vaccinia in Guinea-pig Spleen Cell Strains 833

Chang ... ... Participation of Bicarbonate in RNA and Protein Syntheses as indicated by Virus Propagation in Human Cells ... 833

Frothingham ... ... Effect of Aging and Rotation on Human Amnion Cell Response to Polio and Sindbis Viruses 833

Likar & Wilson ... ... Interaction of Poliovirus and Host Cells *in vitro*: II. Action of Insulin 833

McBride ... ... Antigenic Analysis of Polioviruses by Kinetic Studies of Serum Neutralization 833

Roizman, Mayer & Roane ... ... Immunochemical Studies of Poliovirus. IV. Alteration of Immunologic Specificity of Purified Poliomyelitis Virus by Heat and Ultraviolet Light 834

Sprunt, Redman & Alexander ... Combination of Antigenic Traits of Type 1 and Type 2 Poliovirus 834

Craig & Brown ... ... Relationship between Poliomyelitis Antibody and Virus Excretion from Pharynx and Anus of Orally Infected Monkeys 834

Goldblum, Mercado, Fogel & Cymbalista ... ... Effect of Filtration Procedures on Immunogenic Activity and Safety of Formalinized Poliomyelitis Vaccine 835

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
SABIN ... ... Present Position of Immunization against Poliomyelitis with Live Virus Vaccines 835
BARRON & KARZON ... ... Cultivation of Enteroviruses in Hamster Kidney Tissue Culture 835
TAKEMOTO & HABEL ... ... Virus-Cell Relationship in Carrier Culture of HeLa Cells and Coxsackie A9 Virus 836
ITOH & MELNICK ... ... Double Infections of Single Cells with ECHO 7 and Coxsackie A9 Viruses 836
RAPMUND, GAULD, ROGERS & HOLMES ... ... Neonatal Myocarditis and Meningoencephalitis due to Coxsackie Virus Group B, Type 4 836
CAMAIN & BRES ... ... Coxsackie Virus. Evolution of Lesions in Suckling Mice ... 836
McLAREN & SANDERS ... ... Influence of Age of Host on Local Virus Multiplication and on Resistance to Virus Infections 836
LEHMANN-GRUBE & SYVERTON ... Thermal Stability of ECHO Viruses in Cell Culture Medium 837
HAMMON, YOHN, PAVIA & SATHER Echo Virus Type 13. I. Isolation and Characteristics ... 837
CASALS ... ... Viruses: The Versatile Parasites. I. Arthropod-Borne Group of Animal Viruses 837
DICK ... ... Virus Disease in the Tropics 838
JUBA & PINTÉR ... ... Histopathology of Experimental Tick-Encephalitis elicited by Virus isolated in Hungary 838
MATUMOTO, SABURI & NISHI ... Rift Valley Fever Virus in 1-Day-Old Chick Embryo ... 838

Immunity

TURK ... ... Immunological Activity of Precolostral Calf Serum 839
ARNON, SALZBERGER & OLITZKI ... Appearance of Antibacterial and Antitoxic Antibodies in Maternal Sera, Umbilical-Cord Blood and Milk; Specificity of Antibacterial Antibodies in Human Sera 839
EDWARDS, GRIFFITHS & SWIFT ... Cellular Immunity at Birth. Mechanism and Nature of Phagocytic Response 839
HOWARD & WARDLAW ... ... Opsonic Effect of Normal Serum on Uptake of Bacteria by Reticulo-Endothelial System. Perfusion Studies with Isolated Rat Liver 839
RAFFEL & NEWEL ... ... "Delayed Hypersensitivity" induced by Antigen-Antibody Complexes 840
SALVIN & SMITH ... ... Delayed Hypersensitivity in Development of Circulating Antibody. Effect of X-Irradiation 840
SOBEY, ADAMS & SHORT ... ... Anaphylaxis. IV. Effects of Adjuvants and of *H. pertussis* on Antigenic Properties of Bovine Plasma Albumin in Mouse 840
CARACÒ ... ... Importance of Plasma Cells in Production of Antibodies ... 841
STAUCH & JOHNSON ... ... Alteration of Bacterial Endotoxins by Human and Rabbit Serum 841
HEMMINGS & MORRIS ... ... Attempt to affect Selective Absorption of Antibodies from Gut in Young Mice 841
LUZZIO ... ... Effects of X-Rays on Haemagglutinins 841
KOSCHUCHAROFF ... ... Preparation of Highly Potent Haemolytic Antibodies ... 841
SEWELL ... ... Normal Components of Guineapig Serum which may cause Antigens to show Apparent Anticomplementary Effect ... 842

MISCELLANEOUS

QUEENSLAND INST. OF MED. RES. ... Annual Report, 1958 842
CHINESE MED. J. ... ... Recent Achievements in Promotion of Traditional Chinese Medicine 842
CHINESE MED. J. ... ... Acupuncture and Moxibustion in Treatment of Bacillary Dysentery 842
GREENWALD ... ... Goitre in Japan 843

BOOK REVIEW

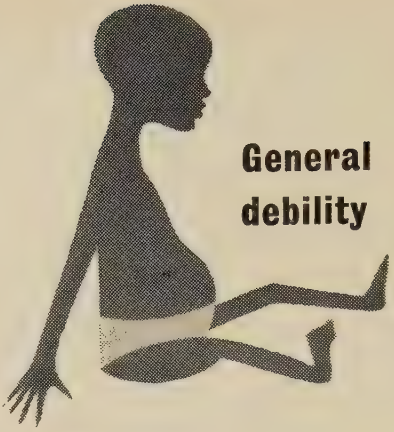
VIJIL ... ... Public Health and Social Science 843

List of Contributors and Staff of the Bureau 844

The Alphabetical List of Authors or Sources is on pages 2, 3 and 4 of cover.

Ascariasis

The possible pattern of infection . . .



General debility

Intestinal obstruction

Perforation

. . . Death ?

ASCARIASIS, one of the most common causes of debility throughout the world, and always accompanied by the risk of serious and sometimes fatal complications, is eradicated swiftly, safely, and efficiently with 'ANTEPAR'.

A single dose of 'ANTEPAR' clears the average roundworm burden in 24 hours. Expulsion is gentle and safe, with no danger of stimulating the ascarids to activity. No additional measures are necessary. And children love the delicious Elixir, and the flavoured chewing Tablets. With these notable advantages, 'ANTEPAR' is today universally recognised as the drug of choice for routine large-scale control of ascariasis.

'Antepar' TRADE MARK **the safe, decisive answer**

BURROUGHS WELLCOME & CO. (The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON ROAD, LONDON, N.W.1, ENGLAND

To gain 21,000,000 days

A million days is many lifetimes, for many people. Yet in Thailand, until recently, some *21,000,000* working days were lost every year through malaria. In addition, up to 50,000 deaths were recorded annually—out of a total population of 18,000,000—a death rate three times that due to any other disease.

To-day, Thailand is one of many countries in the malarial areas of the world which are campaigning to rid themselves of the disease. Already, it is estimated, 12,000,000 of Thailand's inhabitants have been protected, by a campaign whose declared aim is complete eradication of malaria by the early 1960's.

Forty species of *Anopheles* mosquito occur in Thailand, but only three—*A. leucosphyrous, A. sundaicus and A. minimus*—are vectors of the malaria parasites *(Plasmodium falciparum, P. vivax and P. malariæ)* and of these *A. minimus* alone can maintain transmission. The attack therefore has been directed at this particular species, based on dry-season residual spraying of houses. Experience has shown that this technique 'with a suitable insecticide' can provide eradication. To-day, that 'suitable insecticide' is dieldrin, *and only dieldrin.* This powerful insecticide, developed by Shell, has no repellent effect on the insects, and is outstandingly persistent in its effect. Through dieldrin, it is believed, Thailand will regain those lost 21,000,000 working days—with vast benefits to progress, development and national wealth.

dieldrin

dieldrin, aldrin, endrin, D-D and Nemagon are **SHELL** *pesticides for world-wide use*

Issued by Shell International Chemical Company Limited and Bataafse Internationale Chemie Mij. N.V.
For further information consult your Shell Company (in the U.K., apply to Shell Chemical Company Limited)

STAFF OF THE BUREAU

Charles Wilcocks, *C.M.G.*, M.D., F.R.C.P., D.T.M. & H., *Director*
H. J. O'D. Burke-Gaffney, *O.B.E.*, *O.St.J.*, B.A., M.D., *Assistant Director*
Arthur H. Phipps, B.Com., *Secretary*
Joan E. D'Arcy Hart, *Assistant Secretary*

Denise Bairstow
Betty Baldwin
Peggy Carolan
V. P. Collings, B.A.
Nancy Fortescue, B.A.
Frederick W. Norfolk
Margaret Weight
Brenda White

LIST OF CONTRIBUTORS IN THIS ISSUE

Peter Abbott, M.A., M.D., M.R.C.P., D.T.M. & H.
E. Agius, M.D., D.P.H., Dip.Bact.
J. R. Anderson, B.Sc., M.D.
P. Armitage, M.A., Ph.D.
H. Stanley Banks, M.A., M.D., F.R.C.P., D.P.H.
J. M. Barnes, M.B., B.Chir.
D. J. Bauer, Ph.D., M.B., B.Chir.
A. John Beale, M.D., Dip.Bact.
Sir Samuel Bedson, D.Sc., M.D., F.R.C.P., F.R.S.
Lt.-Col. H. J. Bensted, *O.B.E.*, *M.C.*, M.R.C.P.
J. C. Broom, *O.B.E.*, M.D.
H. J. O'D Burke-Gaffney, *O.B.E.*, *O.St.J.*, B.A., M.D.
S. R. M. Bushby, M.Sc., Ph.D.
H. G. Calwell, B.A., M.D., D.T.M. & H.
E. A. Cheeseman, B.Sc., Ph.D., F.S.S.
A. B. Christie, M.A., M.D., D.P.H.
S. T. Cowan, D.Sc., M.D., M.R.C.S., L.R.C.P.
Sir Allen Daley, LL.D., B.Sc., M.D., F.R.C.P., D.P.H.
Professor T. H. Davey, *O.B.E.*, M.D., D.T.M.
Professor M. E. Delafield, *M.C.*, M.B., B.Ch., D.P.H.
Richard Doll, *O.B.E.*, D.Sc., M.D., F.R.C.P.
I. B. R. Duncan, M.B., Ch.B.
W. K. Dunscombe, M.D., D.P.H., D.T.M. & H.
A. S. Fairbairn, M.B.
Mrs. M. Patricia Fitzsimons, M.R.C.S., L.R.C.P., D.I.H.
Forrest Fulton, D.M.
T. O. Garland, M.A., M.D., D.P.H.
Professor L. P. Garrod, M.D., F.R.C.P.
Miss Elizabeth M. Harper, B.Sc., Ph.D.
R. S. F. Hennessey, *C.M.G.*, M.D., F.R.C.P.I., Dip.Bact., D.T.M. & H.
Professor A. Bradford Hill, *C.B.E.*, D.Sc., Ph.D. F.S.S., F.R.S.
Miss Betty C. Hobbs, B.Sc., Ph.D., Dip.Bact.
D. Jenkins, B.Sc.
Miss M. Patricia Jevons, M.D., Dip.Bact.
Colin Kaplan, M.Sc., M.B., Ch.B.
J. Knowelden, M.D., D.P.H.
C. J. La Touche, M.Sc., L.A.H.
Claude Lillingston, M.D.
Miss May F. McCallum, B.Sc.
Professor G. Macdonald, *C.M.G.*, M.D., F.R.C.P., D.P.H., D.T.M.
Miss Sheila McDonald, M.B., Ch.B.
Professor J. W. McLeod, Sc.D., M.B., Ch.B., F.R.S.
W. J. Martin, D.Sc., Ph.D.
Andrew Meiklejohn, M.D., M.R.C.P., D.P.H.
R. B. Morrison, B.Sc., Ph.D.
John R. Norris, B.Sc., Ph.D.
T. E. Osmond, B.A., M.B.
H. G. Pereira, M.D.
A. H. Phipps, B.Com.
D. Rivers, M.D., L.M.S.S.A.
Professor S. Russ, *C.B.E.*, D.Sc.
C. E. Gordon Smith, M.D.
John S. Stevenson, M.D.
Ian Sutherland, D.Phil.
Mrs. Janice Taverne, B.A., Ph.D.
M. L. Thomson, B.Sc., Ph.D., M.B., Ch.B.
Lt.-Col. J. H. Walters, M.D., F.R.C.P.
Charles Wilcocks, *C.M.G.*, M.D., F.R.C.P., D.T.M. & H.
R. E. O. Williams, B.Sc., M.D.
H. T. H. Wilson, M.A., M.D., B.Chir., M.R.C.P.
Frederick J. Wright, M.A., M.D., F.R.C.P.Edin., D.T.M. & H.
F. H. Young, *O.B.E.*, B.A., M.D., F.R.C.P., D.P.H.

BOOKS ON HYGIENE

H. K. LEWIS & Co. Ltd. can supply all Standard Works and Textbooks on Hygiene and Sanitary Science, and all branches of Medicine and Surgery. Large selection available. Catalogues on request.

MEDICAL AND SCIENTIFIC LIBRARY

Annual Subscription from £1 17s.6d.

The Library includes all standard and recent works in all branches of Hygiene and Sanitary Science. **Bi-monthly List of New Books and New Editions** added to the Library sent post free to any address regularly on request.

THE LIBRARY CATALOGUE revised to December 1956, containing a classified Index of Author and Subjects. £2 2s. net; postage 2s. To subscribers to the Library, £1 5s.; postage 2s.

SECONDHAND DEPARTMENT

A constantly changing large stock of Medical and Scientific Literature on view, classified under subjects. Libraries or small collections purchased.

LONDON: H. K. LEWIS & Co. Ltd., 136 GOWER STREET, W.C.1
Telephone: EUSton 4282. Telegrams: Publicavit, Westcent, London
Business hours: 9 a.m. to 5.30 p.m. Saturdays to 1 p.m.

BACK ISSUES OF THE

Tropical Diseases Bulletin

AND

Bulletin of Hygiene

WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

"VISIJAR"

"PERSPEX" SPECIMEN BOXES & APPARATUS

WILL OUTLIVE ALL SUBSTITUTES

Requests for price lists to

THE VISIJAR LABORATORY SUPPLY CO. LIMITED

149, LONDON ROAD, CROYDON, SURREY
CRO 8228/9

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases
  - (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port. Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with:—

- **Protozoal Infections**
  - **(Malaria, trypanosomiasis, leishmaniasis and others)**
- **Rickettsial Diseases**
- **Tropical Virus Diseases**
  - **(Yellow fever and others)**
- Tropical Bacterial Diseases
  - (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin*.

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE
CENTRAL OFFICE OF INFORMATION ... Health Services in Britain 845
BACH, ROSS, LAING, HARRIS, STOCKER, STEWART, BROWN, GRAHAM & TAYLOR ... ... Health Centres of Harlow 845
CANADIAN J. PUB. HEALTH ... ... Public Health Significance of Recent Legislation in Fields of Hospital Insurance and Home Care 846
ROYAL SOC. PROMOTION HEALTH J. Health Congress at Eastbourne, 1958 846
SHILOH ... ... Middle East Culture and Health 847

MATERNAL AND CHILD HEALTH

LONDON SCHOOL OF HYG. & TROP. MED. ... ... Smoking Habits of Schoolchildren 847
NILSEN ... ... Smoking Habits among Schoolchildren in Norway 848
POHOWALLA & GHAI ... ... Common Accidental Poisonings in Children in Indore ... 848
BYERS ... ... Lead Poisoning 849

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

MOSKOWITZ, FUHN, PETERS & KEARLEY ... ... Aged Infirm Residents in Custodial Institution 849

BUREAU OF HYGIENE AND TROPICAL DISEASES

Pneumoconiosis Abstracts Volume III

(covering the years 1951-55)

This volume, published this month, is a sequel to the 2 preceding volumes published in 1953 and 1954, containing abstracts which first appeared in the *Bulletin of Hygiene*. The set of 3 volumes contains a comprehensive collection of abstracts of the important papers published in this field during a period of 30 years.

In addition to abstracts on the various forms of pneumoconiosis, abstracts of articles are included which deal with standards of air dustiness; with concentrations of dust from various processes; with technical methods of measurement of dust; and with the study of the physical properties of dusts and of their chemical and mineralogical characters.

Pneumoconiosis Abstracts

Vol. I	1926-1938	319 pp.	63s.
Vol. II	1939-1950	480 pp.	80s.
Vol. III	1951-1955	355 pp.	65s.

Orders should be sent to

PITMAN MEDICAL PUBLISHING CO., LTD.
39, Parker Street, London W.C.2.

SOCIAL MEDICINE

PAGE

Dongray ... ... Social Work in General Practice 850

VITAL STATISTICS AND EPIDEMIOLOGY

Lotte & Rouillon ... ... Mortality from Tuberculosis in France in 1955 850
Cricchi ... ... Mortality Rates in L'Aquila Commune in Last 20 Years 850
Lancaster ... ... Mortality in Australia, 1951 to 1955 851
Bravo Becherelle & Reyes Jiménez ... ... Life Tables for Mexico from 1893 to 1956 851
Douglas & McKinlay ... ... Maternal and Infant Mortality in Scotland 851
Morrison, Heady & Morris ... Social and Biological Factors in Infant Mortality. VIII. Mortality in the Post-Neonatal Period 852
Thompson & Ciocco ... ... Sickness, Change of Residence, and Death. I. General Results of Follow-Up in 2 Population Groups 852
Benjamin ... ... Measurement of Morbidity 852

COMMUNICABLE DISEASES

Infective Diseases

Barsy & Rudnai ... ... Influence of Age in some Infectious Diseases 853
Wolf, Harris & Dyer ... ... *Staph. aureus* in Air of Operating Room 853
Yow, Yow, Womack, Sakuma & Monzon ... ... Management of Hospital-Acquired Staphylococcal Infections 853
Van Gelder, Carey, Colvin & Randall ... ... Neonatal Infections in Community Hospital 853
Shaffer ... ... Problem of Staphylococcal Infections in Infants and Children 853
Payne ... ... Staphylococcal Cystitis in Gynaecological Ward 854
Paule & Conte ... ... Staphylococcal Septicaemia 854
Tasman ... ... Relationship of Type of Vaccine and Method of Inoculation to Vaccination Reactions after Immunization against Whooping Cough, Diphtheria and Tetanus 854
Spiller, Groarke, Barnes & Holt Diphtheria Prophylaxis 855
Thorburn ... ... Schick Test Results in RAF Boy Entrants 855
Olitzki ... ... Diphtherial Infections in Jerusalem. I. Results obtained from Laboratory Reports of Rothschild Hadassah-University Hospital, 1920–56 855
Agnese ... ... Seasonal fluctuations in *C. diphtheriae* Carrier Rates ... 855
Mitel'man ... ... Efficacy of Active Immunization against Scarlet Fever by Depot Preparations 855
Partington & Quinton ... ... Pre-Eruptive Illness of Measles... 856
Condon; Schreus & Heinisch ... Erythema Infectiosum 856
Maslennikova ... ... Skin Test in Epidemic Parotitis... 856
Utz, Szwed & Kasel ... ... Clinical and Laboratory Studies of Mumps. II. Detection and Duration of Excretion of Virus in Urine 856
Kliachko, Gusarskaia, Maslennikova, Sena & Tsirlina... ... Specific Prophylaxis of Epidemic Parotitis—IV. Epidemiological Effectiveness of Intradermal Vaccination with Live Attenuated Parotitis Vaccine in Institutionalized Groups of Children 857
Lautrop, Holm, Andersen, Scheibel & Tulinius ... ... Vaccination against Whooping-Cough 857
Nichols ... ... Experiences with Chickenpox in Patients with Haematological Disease receiving Cortisone 857
Chassagne & Viguié... ... ... Epidemiological Situation in France in 1955 857
World Health Organization. Technical Report Ser. No. 170 Expert Committee on Respiratory Virus Diseases 858
Holland, McDonald & Wilson ... Asian Influenza in the Royal Air Force in United Kingdom, 1957–8 858
Fraser, Hatch, Shell & Forster Influenza C in Naval Recruit Population 859
Hennessen & Colli ... ... Influenza Pandemic of 1957 859
Sprössig ... ... Microcomplement-Fixation Test during Influenza Epidemic of 1957 859
Altevogt ... ... Detection of Complement-Fixing Antibodies in Influenza ... 859
Vivell, Schröpl, Reimold & Richter ... ... Incidence of Influenza and Adenovirus Infections in Southwest Germany in 1957 859
Sohier, Thivolet, Freydier & Challut-Thal ... ... Complement-Fixation Reactions in Asian Influenza and Influence of Age on Production of Antibodies to different Group A Antigens 860

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller. Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

		PAGE
Gresser & Halstead	Serological Response to Far East Influenza	860
Schoenfeld, Spigland Jasinska-Klinberg, Elazar & Goldblum	Viral Respiratory Infections of Children	860
Mickerson	Influenzal Pituitary Depression	860
Orford Smith & Clements	Clinical Evaluation of Asiatic Influenza Vaccine in Alberta	860
Fukumi, Nishikawa, Kurimoto, Inoue, Usui & Hirayama	Outbreak of Epidemic Kerato-conjunctivitis in Ogaki City and its Vicinity, Gifu Prefecture in 1957	861
Stenström	Pneumonia in Adults during Influenza Epidemic of 1957	861
Young	Pneumonia in Adults	861
Austoni	Staphylococcal Pneumonia in Adults	862
Goldstein & Wehrle	Influence of Socio-economic Factors on Distribution of Hepatitis in Syracuse, N.Y.	862
Bjerkedal	Infectious Hepatitis	862
Balmuş, Mitroiu, Marinescu, Vataşescu & Duvan	Value of Agglutination of Virus-Coated Bacteria Test in Early Diagnosis of Infective Hepatitis	863
Havens	Haemagglutination in Viral Hepatitis	863
Cajal, Boeru, Baba, Leonescu, Tudor & Litman	Results Obtained with Aldolase Reaction in Infective Hepatitis	863
Verheij & Verloop	Acute Thrombopenic Purpura as Complication of Infectious Mononucleosis	863
Creditor & McCurdy	Severe Infectious Mononucleosis treated with Prednisolone	863
Munro	Eczema Herpeticum (Kaposi's Varicelliform Eruption) in Adult	864
Martin	Statistical Aspects of Poliomyelitis in England and Wales in Recent Years	864
Ionesco-Mihaiesti, Sgândar & Biberi-Moroianu	Course of Poliomyelitis in Rumania	864
Ionesco-Mihaiesti; Sergiesco; Klein; Horodniceanu; Zamfiresco; Buimovici; Marcovici	Poliomyelitis in Rumania in 1956. I. Distribution of Antigenic Types of Poliomyelitis Vaccine. II. Epidemiological Considerations and Determination of Virus Type in limited Outbreak	865
Blair	Poliomyelitis: Southern Rhodesia	865
Hall, Nathanson & Langmuir	Age Distribution of Poliomyelitis in United States in 1955	865
Paul	Endemic and Epidemic Trends of Poliomyelitis in Central and South America	866
Engelhard & Bancroft	Poliomyelitis Epidemic in Huskerville, Neb.	866
Soares	Epidemic of Poliomyelitis in Buenos Aires	866
Siegel, Greenberg & Bodian	Presence of Children in Household as Factor in the Incidence of Paralytic Poliomyelitis in Adults	866
Paffenbarger	Effect of Prior Tonsillectomy on Incidence and Clinical Type of Acute Poliomyelitis	867
Salk	Preconceptions about Vaccination against Paralytic Poliomyelitis	867
Liebe & Wöckel	Landry's Paralysis after Poliomyelitis Vaccination	867
Lossing	Vaccination and the Decline in Paralytic Poliomyelitis	868
McLaren	Effect of Vaccines and other Substances upon Course of Neurotropic Virus Infection	868
Duca, Duca, Tomescu & Oana	Role of House-Flies in Transmission of Coxsackie Virus Infection	868
Sussman, Strauss & Hodes	Fatal Coxsackie Group B Virus Infection in the Newborn	869
Foley, Chin & Gravelle	Paralytic Disease due to Infection with ECHO Virus Type 9	869
Hildes, Wilt & Stackiw	Neutralizing Viral Antibodies in Eastern Arctic Eskimos	869
Yamagiwa & Satoh	Encephalitis Epidemica Japonica in Horses occurring in Non-Epidemic Year	869
Huang	Investigation of Factors Causing Inapparent Infections with Japanese B Encephalitis Virus	869
Trapido, Rajagopalan, Work & Varma	Isolation of Kyasanur Forest Disease Virus from Naturally Infected Ticks of Genus *Haemaphysalis*	870
Derevitskaia & Glushkova	Biphasic Meningo-Encephalitis in Moscow Oblast	870
Van Bogaert	Acute Encephalitis in Childhood	870
Mavor, Gallagher & Schumacher	Cerebrospinal-Fluid Culture in Multiple Sclerosis	871
Public Health Lab. Service	Frequency of carriers of Salmonella, Shigellae and Pathogenic Coliform Organisms in Normal Children under 5 Years	871
Sedlak	Problem of Salmonella Infections in Czechoslovakia	871
Meitert, Istrati, Negru & Leondabie	Part played by Sea and Lagoon-Water in Transmission of Enteric Infections	871

London School of Hygiene and Tropical Medicine

(UNIVERSITY OF LONDON)

Incorporating the Ross Institute

KEPPEL STREET, (GOWER STREET), LONDON, W.C.1

Dean: Sir James Kilpatrick, *K.B.E., C.B.*, M.B., D.P.H.

The London School of Hygiene and Tropical Medicine provides the following courses of instruction:

(1) **Academic Postgraduate Diploma in Public Health:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Fee: £73 10s.

(2) **Academic Postgraduate Diploma in Bacteriology:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Applications must be received not later than 1 March. Fee: £73 10s.

(3) **Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene:** The course commences at the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.T.M. & H. course extending over approximately the first 4½ months. Applicants must elect to study one of the following subjects at the final part of the course:—Clinical Tropical Medicine: Tropical Hygiene. Fee: £73 10s. (£42 for the C.T.M. & H. only).

(4) **Diploma in Tropical Medicine and Hygiene (England):** The course for the Conjoint Board's Diploma is held twice a year: from the beginning of October to mid-February and from the beginning of March to mid-July. Fee: £42.

(5) **Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology:** The course commences about the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.A.P. & E. course extending over approximately the first 4½ months. Fee: £73 10s. (£42 for the C.A.P. & E. course only).

(6) A course in **Statistical Methods applied to Medicine and Epidemiology** is held annually on two days a week from about the beginning of January to about the end of April. Students without a medical qualification can be accepted. Fee: £15 15s.

(7) **Public Health Engineering:** The course commences at the beginning of October and lasts for 9 months (whole-time). It is given in co-operation with Imperial College and is intended primarily for students with a university degree in civil engineering or an equivalent qualification. Applications to Imperial College. Fee: £60 plus £2 entrance fee.

(8) **Academic Postgraduate Diploma in Psychology:** Students who are registered for this Diploma at a College of the University may by arrangement attend lectures covering Part II, Section C (Occupational).

(9) **Diploma in Industrial Health:** The industrial health lectures and practical work arranged by the School for Diploma in Public Health students taking Industrial Health as their special subject are recognized by the Conjoint Board and by the Society of Apothecaries as fulfilling the requirements for entry to the D.I.H. examination.

(10) **Environmental Control:** A ten-weeks' course held twice in each academic year; commencing about the beginning of March and about the beginning of October. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: £27 6s. including registration fee.

(11) **Higher Degrees:** Facilities are provided for candidates studying for the degrees of Ph.D. and M.Sc. in appropriate subjects.

Clinical instruction is given at the Hospital for Tropical Diseases and elsewhere.

Enquiries should be addressed to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, (Gower Street), London, W.C.1. (Telephone: MUSeum 3041 and LANgham 7621).

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

		PAGE
Fromme	Epidemiology of Salmonella Infection	872
Callis	Epidemiology of Typhoid Fever in Barcelona	872
Vaizey	Typhoid at Mulago	872
Kireyeva, Khlystova, Sharapova, Poltavskaia, Kolesnikova, Martem'ianova, Gatilova & Zherdeva	Observations on Epidemiology of Dysentery in Vladivostok	872
Nikodemusz & Ormay	Results of Bacteriological Examinations during Epidemic of Water-borne Dysentery	873
Blagoveshchenskii; Konikov; Kliucheva; Marmalevskaia; Tarkhanova; Gekker; Kovaleva; Ivanova; Kashintseva	Preparation of combined Chemical Depot Vaccine against Enteric Infections and Tetanus. I. Preparation, Chemical Properties and Adsorption of Antigens. II. Immunological Properties of Chemical Combined Vaccine	873
Mitel'man & Staroverova	Reactions produced by Chemical Combined Vaccine against Enteric Infections and Tetanus	874
Kheifets, Kilesso, Kaplan, Guralevich, Timen, Skroznikova & Guseva	Polyvalent Vaccine in Epidemiological Experiment	874
Black	Renal Tubular Damage in Infantile Gastro-Enteritis	874
Ts'Ao, Ouyang, P'An & Chou	Treatment of Infantile Diarrhoea with Neomycin	874

Tuberculosis

South Pacific Commission	Tuberculosis Conference, 1958	874
Soman	Problems of Tuberculosis in Pregnancy	875
Levy & Russell	Effect of Topical Hydrocortisone Acetate Ointment at Site of Intracutaneous Tuberculin Reaction	875
Harris	Generalized Tuberculous Adenitis in Bantu Children in South Africa	876
Silwer & Oscarsson	Incidence and Coincidence of Diabetes Mellitus and Pulmonary Tuberculosis in Swedish County	876
Courtois, Vanroux & André-Courtois	Antibiotics and Pulmonary Tuberculosis	877
Ruiter & Bleiker	Effect of Isoniazid Administration on Recent Conversion of Tuberculin Sensitivity	878
D'Agostino & Mingrino	Haemorrhagic Purpura and Antituberculosis Therapy	878
Gupta & Palmer	Short-Term Corticotrophin Therapy for Desensitization against Anti-Tuberculosis Drugs	878
Slade	Ambulant Chemotherapy: Practical Advance in Treatment of Pulmonary Tuberculosis	878
Ang'Awa & Haynes	Prednisone in Treatment of Patients with Pulmonary Tuberculosis at Port Reitz Chest Hospital, Mombasa	878
Turner	Severe PAS Hypersensitivity Reaction controlled by Prednisolone	879
Paley, Mihaly, Mais, Gittens & Lupini	Prednisone in Treatment of Tuberculous Pleural Effusions	879
Griffith	BCG Vaccination by Multiple Puncture	879
Palmer, Shaw & Comstock	Community Trials of BCG Vaccination	879
Anderson *et al.*	Case against BCG	881
Lorber & Menneer	Long-Term Effectiveness of BCG Vaccination of Infants in Close Contact with Infectious Tuberculosis	882
Ellman & Andrews	"B.C.G. Sarcoidosis"	882
Le Chuiton, Chambry & Daoulas	Weak Tuberculin Reactions after "Concomitant" BCG Vaccination	883

Venereal Diseases

Harrison	Origin of Syphilis	883
Fiumara, Appel, Hill & Mescon	Venereal Diseases Today	883
Cannefax & Garson	Demonstration of Common Antigen in Reiter's Treponeme and Virulent *Trep. pallidum*	884
Andujar & Mazurek	Plasmacrit Test on Capillary Blood. Unheated Plasma Screen Test for Syphilis	884
Griffiths, Buckle & Hill	VDRL, Eagle, Price and Kolmer Tests	884
Eng	Course of Reagin Titres in Chronic Biological False Positive Reactors	884
Schmidt	Comparison between Reactivity of Cardiolipin Antigen and Lecithin-Free Cardiolipin Antigen in TPI-Reactive and TPI-Non-Reactive Sera	885

COMMUNICABLE DISEASES—*cont.*

Venereal Diseases—*cont.*

PAGE

Cannefax ... ... Streptomycin, Sodium Azide, and Merthiolate as Bacteriostatic Agents for Use with *Trep. pallidum* Immobilization Test 885
Eng ... ... Treponemal Immobilization Test in Expectant Mothers ... 885
Browne, Bissett & Michelbacher Reproducibility of TPI and TPCF Tests 885
Laird ... ... Elimination of Congenital Syphilis 886
Holmes ... ... Gonorrhoea in Ipoh, 1958 886
Burgess ... ... Non-Gonococcal Urethritis Contacts 886
Albert & Crone ... ... Keratosis Blennorrhagica and its Treatment 886
Klieneberger-Nobel ... ... Possible Significance of PPLO in Human Genital Infection 886
Card ... ... PPLO of Human Genital Origin... 887
Harrison ... ... Diagnosis of Trichomonad Infection by Examination of Stained Films 887
Willcox ... ... Treatment of Vaginal Trichomoniasis with Gyno-Sterosan 887

Other Communicable Diseases

Matveyev & Paul ... ... Study of Tetanus Cases at Kalavati Saran Children's Hospital, 1956–8 887
Adams, Wright, Berman & Laurence ... ... Treatment of Tetanus with Chlorpromazine and Barbiturates 888
Dwyer & Lazarus ... ... Treatment of Severe Tetanus 888
Regamey ... ... Active Immunization against Tetanus 888
Chiang Chung-Chou ... ... Efficacy of Simultaneous Immunization with Live Brucella Vaccine and Tetanus Toxoid 888
Paul & McClure ... ... Epidemic Haemorrhagic Fever Attack Rates among United Nations Troops during Korean War 888
Reid ... ... Cat Scratch Disease 889
Laidlaw ... ... Epidemic of Unknown Aetiology... 889

Zoonoses

Thienpont, Wiktor, Mortelmans, Vandenabbeele, Biche, Fagard & Pinckers ... ... Bovine and Human Brucellosis in Belgian Congo 889
Knothe, Zimmermann & Havemeister ... ... Tularaemia in Schleswig-Holstein 890
Fukada & Ohara ... ... Tularaemia in Japan 890
Sase ... ... Epidemiological Studies on Tularaemia in Japan with Aid of Skin Test. II. Survey in Bandai Highland, 1957. III. Criteria of Skin Test 890
Mitrofanova-Perfil'eva ... ... Significance of Food Products in Epidemiology of Leptospiroses 891
Perederi, Magureanu, Sefer, Israel & Bercea ... ... Leptospiroses in Region of Constantza... 891
Muraschi ... ... Latex-Leptospiral Agglutination Test 891
Meyer ... ... Psittacosis and Ornithosis... 892

DISEASES DUE TO FUNGI

Riddell & Stewart ... ... Fungous Diseases and their Treatment... 892
Kirk ... ... Mycoses of Malaya and Singapore 893
Marples & Bailey ... ... Search for Presence of Pathogenic Bacteria and Fungi in Interdigital Spaces of Foot 893
Marples ... ... Some Problems in Ecology of Dermatophytes... 893
Herpay & Mészáros... ... ... Outbreak of Trichophytosis 893
Raubitschek ... ... Infectivity and Family Incidence of Black-Dot Tinea capitis 893
Blank & Roth... ... ... Treatment of Dermatomycoses with orally administered Griseofulvin 894
Seabury & Dascomb ... ... Experience with Amphotericin B for Treatment of Systemic Mycoses 894
Tegeris & Smith ... ... Disseminated Pulmonary Histoplasmosis treated with Cortisone and MRD-112... 894
Higuchi & Iwasaki ... ... Systemic Moniliasis complicated with Leukaemia 895
Tiant & Fuentes ... ... Cutaneous Cryptococcosis 895
Akagi, Fujino, Hayashi, Yamamoto & Akabe ... ... Pulmonary Infection caused by Black Yeast-like Fungus ... 895

DISEASES DUE TO FUNGI—*cont.*

		PAGE
Briceño Maaz	Fatal Case of *N. brasiliensis* Infection...	895
Fingerland, Skrivánek, Mydlil & Procházka	Pulmonary Aspergillomas	895
Jensen	Mycotic Vaginitis. Therapeutic Trials with Sterosan during Pregnancy	895

RHEUMATIC DISEASES

Crea & Mortimer	Nature of Scarlatinal Arthritis	896
Illingworth, Lorber, Holt & Rendle-Short	Acute Rheumatic Fever in Children. Comparison of 6 Forms of Treatment	896
Illingworth	Cortisone Treatment of Rheumatic Fever	896
McCue	Steroid Therapy for Rheumatic Fever	896
Wood; Stollerman; Feinstein; Hirschfeld; Rusoff; Taranta; Haas; Epstein; Simpson; Tursky	3 Methods of Prophylaxis against Streptococcal Infection in Population of Rheumatic Children. I. Streptococcal Infections and Recurrences of Acute Rheumatic Fever in First 2 Years of Study. II. Results of First 3 Years of Study, including Methods for evaluating Maintenance of Oral Prophylaxis	896

CANCER

World Health Organization. Technical Report Ser. No. 164	6th Report of Expert Committee on Health Statistics including 3rd Report of Sub-Committee on Cancer Statistics	897
General Register Office	Cancer Statistics for England and Wales, 1901–55. Summary of Data relating to Morbidity and Mortality ...	897
Leguérinais & Maujol	Deaths from Cancer in France in 1957	898
Posner, McDowell & Cross ...	Mass Radiography and Cancer of Lung...	898
Friberg, Kaij, Dencker & Jonsson	Smoking Habits of Monozygotic and Dizygotic Twins ...	898
Nørgaard	Tobacco Consumption in Denmark. III. Danish National Morbidity Survey, 1950	898
Brown & Doll	Adult Leukaemia. Mortality in Relation to Aetiology ...	899

MISCELLANEOUS DISEASES

Zarković & Radovanović	Extent and Epidemiology of Endemic Goitre in Bosnia and Herzegovina	899

OCCUPATIONAL HYGIENE

Internat. Labour Office	International Directory of Institutions engaged in Study, Research and other Activities in Field of Occupational Safety and Health	900
Ministry of Labour & National Service	Duties, Organization and Staffing of Medical Branch of Factory Inspectorate	900
Slough Industrial Health Service	Tenth Annual Report 1956–57 and Review of First 10 Years	900
Taylor	Harlow Industrial Health Service	902
Harada & Fukuhara...	Hazards to Upper Extremities caused by Portable Pneumatic Tools	902
Lawrence	Problem of Rheumatism in Industry	902
McCord	Zooanthroponoses as Occupational Diseases in U.S.A. ...	903
Marks & James	Measurement of Dust Toxicity *in vitro*...	903
Mosinger, Fiorentini, El Feki, Cartouzou, Bouisson, Gras & De Bischop	General Biochemical Syndrome in Silicotic Animals ...	903
Gross	Silicosis: Critique of Present Concept and Proposal of Modifications	903
Marks	Neutralization of Silica Toxicity *in vitro*	904
Schlipköter, Thews & Dolgner...	Quartz-Agglutination Reaction with Serum of Patients with Silicosis	904
Gaultier, Guyotjeannin & Fournier	Investigations of Serum of Silicotic Subjects for Presence of C-Reactive Protein	904
Guyotjeannin & Guyotjeannin ...	Increase of Coagulability of Blood in Silicosis...	904

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Gaultier, Guyotjeannin & Fournier	Serum Copper Levels in Silicosis	904
Powell & Gough	Effect on Experimental Silicosis of Hypersensitivity induced by Horse Serum	905
Vigliani	Compensation for Silicosis	905
Barberá Armelles	Silicosis in Foundries	905
Caldwell	Coalescent Lesion of Diatomaceous Earth Pneumoconiosis	905
Mitchell	Pulmonary Fibrosis in Aluminium Worker	906
Ueda, Mizoi, Maki, Maeda & Takada	Aluminium Dust Lung. Necropsy Report	906
King, Harrison, Mohanty & Yoganathan	Effect of Aluminium and of Aluminium containing 5% Quartz in Lungs of Rats	906
Engelbrecht, Byers, Stacy, Harrison & King	Tissue Reactions to injected Aluminium and Alumina in Lungs and Livers of Mice, Rats, Guineapigs and Rabbits	906
Stacy, King, Harrison, Nagelschmidt & Nelson	Tissue Changes in Rats' Lungs caused by Hydroxides, Oxides and Phosphates of Aluminium and Iron	907
Leathart	Mechanical Properties of Lung in Pneumoconiosis of Coal-Miners	908
Loni, Belloiu, Sahleanu & Holban	Haematological and Endocrine Changes in Animals kept in Coal-Pits	908
Louvain University	Mining Hygiene	908
Seeler, Gryboski & MacMahon	Talc Pneumoconiosis	909
Chabot, Froeb, Pivoteau & Sadoul	Evaluation of Alveolar Ventilation by Measurement of Arterial CO_2 Output	909
Sadoul, Chabot & Pillot	Consideration of Alveolar Ventilation in Respiratory Insufficiency	910
Szewczykowski	Semeiology of Early Lead Poisoning and Value of Laboratory Tests in its Diagnosis	910
Lewis	Biological Actions of Vanadium. I. Effects on Serum Cholesterol Levels in Man	910
Wember	Theory of Air Flow Pattern above an Exhaust Slot Operating on Air Screening Process	910
Gerarde	Toxicological Studies on Hydrocarbons. III. Biochemorphology of Phenylalkanes and Phenylalkenes	910
Magos, Bátskor & Csenkey	Carbon Disulphide Poisoning in Artificial Silk Manufacture	911
Yamada	Studies on Experimental Chronic Poisoning with Nitrobenzene	911
Maccherini & Camarri	Nitroglycol Poisoning	911
Miller & Ehrlich	Susceptibility to Respiratory Infections of Animals exposed to Ozone. I. Susceptibility to *K. pneumoniae*	912
Dalhamn	Freon as Cause of Poisoning	912
Davies & Green	Chemotherapy of Poisoning by Organophosphate Anticholinesterases	912
Golz	Controlled Human Exposures to Malathion Aerosols	913
Bourne, Milner & Alberman	Health Problems of Epoxy Resins and Amine-Curing Agents	913
Evans	2 Cases of Hydrazine Hydrate Dermatitis without Systemic Intoxication	913
Young & Monro	Radioactive Contamination—The Wishaw Incident	913
Newcombe & James	Heredity, Health and Radiation	914
Dobson	Radioactivity in Ennerdale Rural District	914

ATMOSPHERIC POLLUTION

Daly	Air Pollution and Causes of Death	914

SANITATION

Water and Swimming Baths

Dept. Scient. & Indust. Res.	Report of Water Pollution Research Board, 1958	915
Bouillaud	Enumeration of Bacteria in Liquid Media. Application to Estimation of Coliform Organisms in Water by Statistical Method	916
Chambon	Pollution and Self-Purification of River Rhône	916
Unger	Radioactivity and Water	916

SANITATION—*cont.*

Sewage, Trade Waste and Refuse Disposal

PAGE
Orford & Matusky ... Comparisons of Short-Term with 5-Day BOD Determinations of Raw Sewage ... 916
Stuewer ... Effects of Synthetic Detergents on Sewage Purification ... 917
Müller ... Tubercle Bacilli in Sewage Sludge ... 917
Reeves ... Sanitary Aspects of Composted Sewage Sludge and Sawdust 917

INFESTATION AND DISINFESTATION

Ministry of Agriculture, Fisheries and Food ... Infestation Control ... 917

FOOD AND NUTRITION

Foodstuffs

Meyer-Oschatz ... Bacteriological Investigations of Milk Can and Bottle Washing Machines ... 918

Food Poisoning

Masi, Timothee, Armijo, Alonso & Mainardi ... 2 Outbreaks of Poisoning in Puerto Rico from Salt Preserved Codfish ... 918
McKillop ... Bacterial Contamination of Hospital Food with special reference to *Cl. welchii* Food Poisoning ... 918

BACTERIOLOGY AND IMMUNITY

General

Buchanan ... Microbiological Literacy ... 919
Habeeb ... Bacteriological Media: Examination of Peptides in Bacto-Casitone ... 919
Yakulis & Heller ... Rapid Slide Technique for Double Diffusion Agar Precipitin Test ... 919
Marquis & Gerhardt ... Polymerized Organic Salts of Sulphonic Acids used as Dispersing Agents in Microbiology ... 920
Marcus, Anselmo & Perkins ... Bacterial Pyrogenicity. I. Quantitative Basis ... 920
Vanini & Campana ... Use of Sodium Glutamate Filters for Bacteriological Sampling of Air ... 920
Lidwell ... Impaction Sampler for Size Grading Air-Borne Bacteria-Carrying Particles ... 921
Darlow & Bale ... Infective Hazards of Water-Closets ... 921
Allen ... Air Hygiene for Hospitals. I. Arrestment of Airborne and Dustborne Staphylococci by Hospital Vacuum Cleaner ... 921
Webb ... Chloramphenicol and Survival of Airborne Bacteria ... 921

Bacteriostatic and Bactericidal Substances; Disinfection

Welsch & Osterrieth ... Transformation of Gram-Negative Rods into "Protoplasts" under Influence of Penicillin and Glycine ... 921
Johnston & Cazort ... Immediate Reactions to Penicillin ... 922
Caputi ... Anaphylactic-Type Reaction attributed to Penicillinase ... 922
Yaffee ... Erythema Multiforme caused by Penicillin ... 922
Watson ... Effect of Chloramphenicol on Qualitative Aspects of Antibody Production against Enterobacteriaceae ... 922
Hirsch, Kunin & Finland ... Antibacterial Activity of Serum of Normal Men after Oral Doses of Erythromycin Propionate and Triacetyloleandomycin ... 922
Elliott & Hall ... Comparison of Erythromycin with Oleandomycin in Combination with other Antibiotics against Hospital Staphylococci ... 923
Eisenberg, Weiss & Flippin ... *In vitro* Activity against selected Problem Pathogens ... 923
Marty & McCoy ... Chromatographic Separation and Biological Properties of Oligomycins ... 923
Misiek, Gourevitch, Heinemann, Cron, Whitehead, Schmitz, Hooper & Lein ... Mycorhodin, a New Antibiotic ... 923

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances; Disinfection—*cont.*

PAGE

Mazzacca, Altucci & Talarico ... Antibacterial Activity of Alkyl Derivatives of Sulphonic Acids ... 923

Berti & Visentini ... Antiviral Chemotherapy. I. Chelates of Bismuth with Sodium Pyrocatechindisulphonate ... 924

Bönicke ... Tuberculostatic Activity of Pentaheterocyclic Carbonic Acid Hydrazides ... 924

Rudat ... Antibacterial Action of Various Floor Coverings and Wall Decorating Materials and its Significance for Clinic and Hospital ... 924

Dunklin & Lester ... Residual Surface Disinfection. II. Effect of Orthophenylphenol Treatment of Floor on Bacterial Contamination in Recovery Room ... 924

Merkenschlager & Schmid ... Motility of Micro-Organisms in Relation to Effect of Chemotherapeutic Agents ... 925

Schnitzer, Grunberg, DeLorenzo & Bagdon ... Triclobisonium Chloride, an Antimicrobial Agent with Local Activity in Living Host Tissues ... 925

Individual Bacteria

Combiesco, Cracea, Nicolesco & Rezmerita ... Determination of Salmonella Genus by means of Antisomatic Bacteriophage ... 925

Nicolle, Huet & Ninard ... *Salm. typhi* Phage Types Identified in North Africa ... 925

Mitsuhashi, Harada & Kawakami ... Experimental Typhoid. IIa. Relation between Virulence and Antigenic Structure of Virulent and Attenuated Strains of *Salm. enteritidis* ... 926

Krieg, Wedberg & Penner ... Cockroaches *Blaberus craniifer* and *Blaberus discoidalis* as Vectors of *Salm. typhosa* ... 926

Toma, Soru, Barber, Gritaenco & Bogokowasky ... Typhoid-Paratyphoid Vaccines prepared from Bacterial Extracts Adsorbed on Mineral Support. I. Comparative Immunobiological Study of Antigenic Extracts obtained from *Salm. typhi* and other Enterobacteriaceae containing Vi Antigen ... 926

Nicolesco ... Biological Characters of Strains included in TAB Vaccine ... 926

Grant ... New *Salmonella* Type, S. Jamaica ... 927

Istrati; Manolium; Gorea; Weinbach ... Bacterial Dissociation. V. Antigenic Structure of Ro Forms of *Shigella*. i. Investigations of 6 Strains by means of Serum Agglutination and of Direct and Crossed Agglutinin Absorption. ii. Investigation of 6 Strains by Indirect Haemagglutination Method and Inhibition Test ... 927

Ślopek & Dabrowski ... New Type of Enterobacteriaceae showing Antigenic Relationship with *Sh. flexneri* ... 927

Ślopek & Dabrowski ... New Type of Enterobacteriaceae showing Antigenic Relationship to *Shigella* and *Alkalescens-dispar* ... 928

Ślopek & Dabrowski ... Characteristics of New Thermolabile Antigens occurring in Enterobacteriaceae ... 928

Metzger ... Antigenic Structure of *Sh. boydii* Strains. I. Characteristics of New Thermolabile Antigen. II. Serological Relationship among *Sh. boydii* Types with regard to Thermolabile and Thermostable Antigens ... 928

Istrati & Meitert ... Use of Absorbed "Negative" Sera in Laboratory Diagnosis of Shigellosis. Possibility of preparing Agglutinating Antidysenteric Sera in Big Animals ... 928

Metzger & Obst ... Natural Dysenteric Agglutinins in Normal Rabbit Sera ... 929

Gorea; Istrati; Maldaresco ... Antidysenteric Vaccination. I. Relations between Route of Vaccination and Route of Infection or Intoxication with Living Germs, Killed Germs or Glucidolipidic Extracts of *Sh. Flexneri* 2a. II. Immunization Experiments in Mice against Infection with Strains of *Sh. flexneri*. III. Experiments with Heat Inactivated and with Alcohol-, Acetone- or Formal-Treated Corpuscular Vaccines of *Sh. Flexneri* 2a ... 929

Milbauer & Grossowicz ... Reactivation of Chlorine-Inactivated *E. coli* ... 929

Milbauer & Grossowicz ... Effect of Growth Conditions on Chlorine Sensitivity of *E. coli* ... 929

Noyes, McInturf & Blahuta ... Distribution of *E. coli* Endotoxin in Mice ... 930

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Wust	Mucoid Enhancing Antibody in Homologous Antiserum for *E. coli*	930
Coetzee	Some Properties of Morphological Variant of Strain of Proteus Vulgaris	931
Hall & Humphries	Relationship between Insusceptibility to Phagocytosis and Virulence of certain *K. pneumoniae* Strains	931
Epstein & Payne	Effect of Some Variables on Experimental *Klebsiella* Infections in Mice	931
Groman & Memmer	Lysogeny and Conversion in Mitis and Mitis-Like *C. diphtheriae*	931
Ben-Efraim & Long	Sensitizing Power of Diphtheria Prophylactics in relation to Poliomyelitis	932
Calalb, Poenaru, Stanica, Saragea, Kranzdorf, Maximesco, Esrig & Stoian	Associated Diphtheria-Tetanus Toxoid	932
Kwapinski	Antigenic Structure of *Actinomycetales.* III. Antigenic Relationship between *Corynebacterium* and *Mycobacterium* Strains	932
Saxholm	Methods for Cultivation of *Myco. tuberculosis* from Sputum	933
Aoyagi & Mizuno	Cultivation of Mycobacteria Rocked in Non-Protein Medium containing High Concentration of Tween 80	934
Aoyagi & Mizuno	Rapid Antibacterial Test for Mycobacteria with Reverse T Type of Tube in Rocked Culture	934
Wayne	Quantitative Aspects of Neutral Red Reactions of Typical and "Atypical" Mycobacteria	934
Katsuyama & Kanai	Virulence of 2 Sub-Strains Dissociated from Strain of Virulent Tubercle Bacilli by Single Cell Cultivation	935
Lyon & Hall	Effect of Isoniazid on Growth of Tubercle Bacilli from Pulmonary Lesions	936
Viallier, Ollagnier & Augagneur	Antitubercular Activity of Crotonaldehyde of Isoniazid	936
Zsolnai	Search for New Tuberculostatics. VI. Some Newer Derivatives of Isonicotinic Acid Hydrazide	936
Hirano, Sushida & Yamada	Chemotherapy of Tuberculosis. Antituberculous Activity of Isonicotinoyl-3,4-Diethoxybenzal Hydrazone	937
Sirsi	Experimental Tuberculosis. Influence of Under-Nutrition on Development of Resistance in BCG Vaccinated Mice	937
Conge, Collin, Levy & Dubos	Microscopic Enumeration of Mycobacteria in Pulmonary Lesions of Tuberculous Mice	937
Beck	Atypical Acid-Fast Bacilli in Pulmonary Disease	938
Viallier, Cayré & Augagneur	Sensitivity of Atypical Mycobacteria to Different Antibiotics	938
Bekierkunst, Sulitzeanu & Halpern	Cross Resistance in Experimental Tuberculosis and Brucellosis in Mice	939
Altenbern, Williams & Ginoza	Effect of Cobalt on Population Changes in *Br. abortus*	939
Myers	Chemical Test related to Virulence of *Staph. aureus*	939
Lieberman, Douglas & Humphrey	Ascites induced in Mice by *Staphylococcus*	939
D'Antona	Staphylococcal Toxoid in Human Medicine	940
Lowbury & Hurst	Sensitivity of Staphylococci and other Wound Bacteria to Erythromycin, Oleandomycin and Spiramycin	940
Buhr & Scott	Penicillin-Resistant Staphylococci Incidence in Outpatients with Hand Infections	940
Dobrzanski, Eysymontt & Osowiecki	Characteristics of Strains of Staphylococci isolated in Paediatric Clinic in Warsaw	940
Sasiaw, Saul, Jenks & Jablon	Beta-Haemolytic Streptococci from Several Sources Reactive in Both Groups A and F Antisera	941
Pavlov; Akimova; Pemiankevich; Mitel'man	Purified Adsorbed Scarlet Fever Toxin. II. Adsorption of Purified Scarlet Fever Toxin. III. Attempts at Active Immunization against Scarlet Fever by means of Purified Adsorbed Scarlet Fever Toxin	941
Elliott & Barnes	Changes in Serological Type and Antibiotic Resistance of Lancefield Group D Streptococci in Chicken receiving Dietary Chlortetracycline	941
Ravin	Reciprocal Capsular Transformations of Pneumococci	942
Price & Gare	Source of Error in Microbiological Assays attributable to Bacterial Inhibitor in Distilled Water	942
Gabrielesco, Suhaciu, Bordeianu, Faur & Andreesco-Tigoiu	Histopathological and Histochemical Alterations in Brain of Guineapig under Influence of *B. pertussis* Endotoxin	942
Larson, Treick, Edwards & Cox	Growth Studies and Plate Counting of Leptospires	943

Individual Bacteria—*cont.*

PAGE
Van der Hoeden ... ... Leptospiral Infections in Hedgehogs 943
Carlquist ... ... Simplified Technique for Anaerobic Culture 943
Van Heyningen ... ... Fixation of Tetanus Toxin by Nervous Tissue 944
Van Heyningen ... ... Chemical Assay of Tetanus Toxin Receptor in Nervous Tissue 944
Van Heyningen ... ... Tentative Identification of Tetanus Toxin Receptor in Nervous Tissue 944
Boni ... ... Sensitivity of Bacterial Spores to Antibiotics *in vitro*. III. Sensitivity of *Cl. tetani* Spores in Different Experimental Conditions 944
Murata, Yamada & Kameyama ... Production of Alpha Toxin of *Cl. perfringens*. I. Preparation of Reproducible Peptone Medium for Production of Toxin of High Potency 944
Penso & Vicari ... ... Study of Immunity Phenomena by means of Tissue Cultures. IV. Cytopathogenic Action of Toxin of *Cl. histolyticum*. V. Cytopathogenic Action of Toxin of *Cl. septicum*. VI. Cytopathogenic Action of Toxin of *Cl. oedematiens* 945
Reymond, Bozic & Granduillaume 2 Cases of Foetal and Neonatal Listeriosis 945

Fungi

Eckstein, Halweg & Urbanski ... Fungistatic Activity of 3,4-Dichlorophenoxyacetohydroxamic Acid on Pathological Fungi *in vitro* 945
Catanei & Schousböe ... ... 2 Algerian Strains of *Achorion schönleini* responsible for Generalized and Fatal Favus 945
Gordon & Mihm ... ... Comparison of *N. asteroides* and *N. brasiliensis* 946
Castellani, De Brito & Pinto ... Actinomycete isolated from Autochthonous Case of Mycetoma in Portugal 946

Bacteriophages

Teruda ... ... Bacterial Viruses 946
Uetake ... ... Genetic Control of Inducibility in Lysogenic Bacteria ... 947
Six ... ... Rate of Spontaneous Lysis of Lysogenic Bacteria 947
Lipnicki & Wojciechowski ... Action of Biguanidine Compounds on Dysentery Phage ... 947
Kantoch ... ... Phagocytosis of Bacterial Viruses. I. 947
Helprin & Hiatt ... ... Photosensitization of T2 Coliphage with Toluidine Blue ... 948
Krieg ... ... Study of Gene Action in Ultra-violet-Irradiated Bacteriophage T4 948
Pietrzykowska ... ... Role of Protein Synthesis in Production of Lysogenic Phage after UV Induction 948

Viruses

Fenner, Holmes, Joklik, Woodroofe ... ... Reactivation of Heat-Inactivated Poxviruses 948
Spies & Edlinger ... ... Multiplication and Passage of Dermotropic Bovine Vaccinia Virus Strain on Mesodermal Cell Cultures 949
Pumper ... ... Differences in Response of Tissue Culture Cell Lines to Vaccinia Virus 949
Cassel & Fater ... ... Loss of Haemagglutinin on Passage of Vaccinia Virus in L Cells 949
Weller, Witton & Bell ... ... Aetiologic Agents of Varicella and Herpes Zoster. Isolation, Propagation and Cultural Characteristics *in vitro*... ... 949
Weller & Witton ... ... Aetiologic Agents of Varicella and Herpes Zoster. Serological Studies with Viruses as propagated *in vitro*... ... 949
Schwartz, Elias, Moscovici & Samuel ... ... Isolation of Mumps Virus from Cerebrospinal Fluid... ... 950
Klyatchko & Smorodintsev ... Live Anti-Mumps Vaccine. II. Epidemiological Effectiveness of Immunization of Children with Single Intradermal Injection of Live Anti-Mumps Vaccine 950
Smorodintsev & Klyatchko ... Live Anti-Mumps Vaccine. I. Results of Tests of Immunogenic Properties of Live Vaccine when administered intradermally to Susceptible Children... 950
Kliachko, Kuz'min & Mikhailov Results of Study of Infectious, Reaction-Producing and Antigenic Effects of Dried Preparations of Live Attenuated Mumps Vaccine 950

Viruses—*cont.*

		PAGE
Broniteki, Petrescu, Petrescu, Rothschild & Athanasiu-Stroescu	Isolation of Strain of Influenza Virus of predominantly Neurotropic Character from Fatal Case in Infant	950
Fauconnier & Barua...	Increase of Viral Haemagglutinability of Red Cells of Mouse after Treatment with Formalin	951
Buckland	Impairment of Viral Haemagglutination of Red Cells after Treatment with Formalin	951
Gottschalk	Mechanism underlying Initiation of Influenza Virus Infection	951
Negroni & Tyrrell	Tissue Cultures of Epithelial Cells infected with Influenza-A Viruses	951
Frommhagen & Lennette	Spontaneous Disappearance of Slow-Sedimenting Components of Influenza Virus Preparations	951
Nász & Tóth	Susceptibility of Human Amnion and Detroit 6 Tissue Cultures to Adenoviruses of Several Types and their Degeneration	951
Steinman & Murtaugh	Isoelectric Precipitation of Adenovirus and of its Complement-Fixing Antigen	952
Syverton	Appraisal of Enterovirus Problem	952
International Poliomyelitis Congress	Fourth International Poliomyelitis Conference, Geneva, 1957	952
Prier & Sullivan	Development of Chick Embryo Heart Cell for Cultivation of Poliovirus	953
McLaren; Holland; Syverton ...	Mammalian Cell-Virus Relationship. I. Attachment of Poliovirus to Cultivated Cells of Primate and Non-Primate Origin. II. Adsorption, Reception and Eclipse of Poliovirus by HeLa Cells. III. Poliovirus Production by Non-Primate Cells exposed to Poliovirus Ribonucleic Acid	953
Dunneback	Yield of Poliovirus from Individual Cells in Tissue Culture	954
Hoyer, Bolton, Ritter & Ribi ...	Simple Method for Preparation of Purified Radioactive Poliovirus Particles: Electron Micrograph	954
Ackerman, Loh & Payne	Biosynthesis of Protein and Ribonucleic Acid in HeLa Cells infected with Poliovirus	954
Lépine; Ramon	Poliomyelitis Vaccines and Vaccinations	954
Koprowski	Live Poliomyelitis Vaccine	955
Pontecorvo	Serological Response of Poliomyelitis Vaccine associated with Other Antigens	955
Hsiung	Effect of X-Irradiation on Patas Monkey Kidney Cell Susceptibility to Enteroviruses...	955
Albrecht & Mayer	Comparison of Tissue Affinity in 2 Type B1 Coxsackie Viruses and Relationship of Virus to Parotid Glands in White Mice	956
Smith & Cheever	Relation of Viral Proliferation and Antibody Formation in Mice exposed to Roentgen Radiation	956
Lycke, Hultgardh & Redin ...	Coxsackie B1 Virus and Febrile Illness with Rash	956
Fukumi, Nishikawa & Mizutani ...	Further Studies on 56–67 Virus	956
Trinidad	Annual Report of Trinidad Regional Virus Laboratory 1958	956
Porterfield	Plaque Production with Yellow Fever and Related Arthropod-Borne Viruses	956
Traub	Course of Infection with EEE Virus and Development of Immunity in Adult Mice	957
Ada & Anderson	Yield of Infective Ribonucleic Acid from Impure Murray Valley Encephalitis Virus after Different Treatments ...	957
Vagzhanova	Effect of Tick-Borne Spring-Summer Encephalitis Virus on Development of Ehrlich's Ascitic Carcinoma	957
Kovac & Moritsch	Pathogenesis of Infection of Mice with Virus of Human Spring-Summer Meningo-encephalitis. I. Comparative Virological and Histological Investigations	957
Streissle	Viraemia in Chickens after Subcutaneous Infection with Tick-borne Encephalitis Virus...	957
Boulger & Porterfield	Isolation of Virus from Nigerian Fruit Bats	958
Nossal	Antibody Production by Single Cells. II. Difference between Primary and Secondary Response	958
Bridges, Condie, Zak & Good ...	Morphological Basis of Antibody Formation Development during Neonatal Period	958
Ciuca	Mechanism of Antityphoid Immunity	959
Barnes	Antitoxin Transfer from Mother to Foetus in Guineapig ...	959

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

		PAGE
Osler	Quantitative Studies of Complement Fixation	959
Dressler	Immunochemical Investigations on Properdin System	960
Paulissen & Schechmeister	Effect of Sublethal Whole-Body X Radiation on Active Immunity	960
Nelson & Nelson	Mechanism of Immune-Adherence. I. Differentiation from Acid-Adhesion of Bacteria to Erythrocytes. II. Analogy to Mixed Aggregation of Sensitized Antigens in Presence of Complement; Immune-Adherence with Animal Platelets	960
Pontecorvo	Manifestations of Activity of Properdin System in Course of Immune-Adherence Reaction	961
Piéron & Barreto	New Work on Reaction of Immune Adherence	961
Wardlaw & Howard	Comparative Survey of Phagocytosis of Different species of Bacteria by Kupffer Cells	961
Furness & Ferreira	Role of Macrophages in Natural Immunity to Salmonellae	961

MISCELLANEOUS

Chalke & Watton	Home Accidents	962
Cookson & Maclay	Home Accidents in Under-Fives	962
Morfitt	Home Accidents in Young Children	963
Medical Officer	"Operation Jane" at Worthing. Experiment in Home Safety Education	963
Hume	Strategy and Tactics of Experimentation	963
Habermann	Spontaneous Diseases and their Control in Laboratory Animals	963

BOOK REVIEWS

Benjamin	Elements of Vital Statistics	964
May	The Ecology of Human Disease	964
Paul	Clinical Epidemiology	965
Köhler	The Serology of Rheumatism and Streptococcal Infections	965
Laurence	Quantitative Methods in Human Pharmacology and Therapeutics. Proceedings of a Symposium held in London on 24th and 25th March, 1958	965
Pollard	Perspectives in Virology	966
International Labour Office	African Labour Survey	966
Soc. Exper. Biol.	The Biological Replication of Macromolecules	967
Adams	Bacteriophages	968

List of Contributors and Staff of the Bureau ... ii

The Alphabetical List of Authors or Sources is on pages 2, 3 and 4 of cover.

treatment

suppression

eradication

‘daraclor’

BRAND

TABLETS

the **new** all-purpose antimalarial

Treatment	‘DARACLOR’ ensures swift and efficient control of the acute attack. In semi-immunes, a single dose is sufficient.
Suppression	‘DARACLOR’ is without question the most powerful suppressant of malaria now available. With ‘DARACLOR’, the development of parasite-resistance is extremely unlikely.
Eradication	By virtue of its combined schizonticidal, suppressant, and sporontocidal properties, ‘DARACLOR’ is unsurpassed as an adjuvant to vector control. Mass ‘single-dose’ distribution is suggested as a follow-up to spraying campaigns.

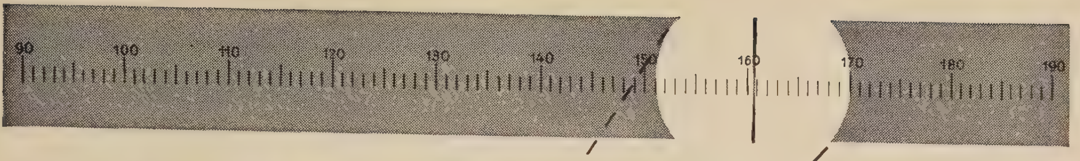
In eradication programmes, for protection of troops and labour forces, and for treatment and protection of the individual . . .

‘daraclor’

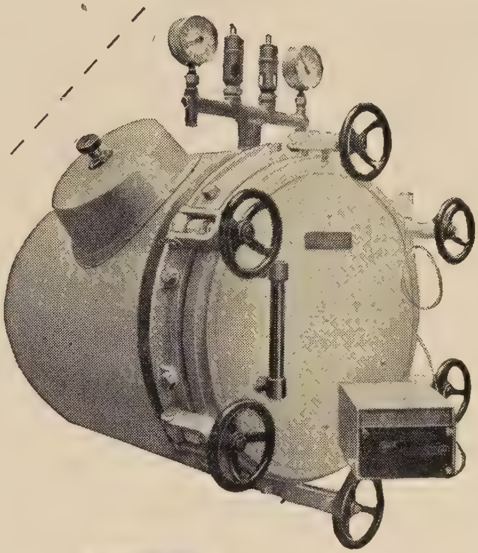
is the **complete** antimalarial

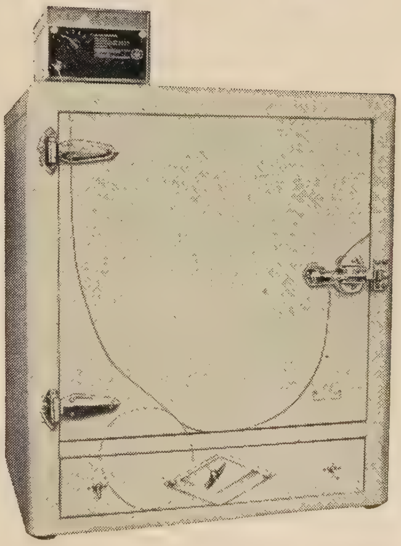
(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base.)

BURROUGHS WELLCOME & CO., LONDON
(The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON RD., LONDON, N.W.1



FOR ACCURATE TEMPERATURE MEASUREMENTS
in AUTOCLAVES
HOT AIR
OVENS and
other sterilising
equipment





The New Type TE5 Electric Thermometer. This handy, battery-operated thermometer with spot-illuminated scale, provides a means of ascertaining the *exact* temperature throughout the entire sterilising cycle in the centre of a dressing drum, in the "free" space, in a roll of cotton material or a syringe container, etc. etc.

The 10 ft. thermocouples with fibre glass silicon lacquered insulation and measuring only 2mm × 1mm, can be introduced into the chamber between the door and the gasket and as many as 15 thermocouples may be used simultaneously.

Weighing only 7 lbs. the instrument is easily carried and always ready for use since no tiresome calibration is necessary.

Standard measuring range: 90 to 190°c.

Accuracy: ± 0·3% of the full scale.

For further details apply to:

SIEREX Ltd 241 Tottenham Court Road London W1 LANgham 2464

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with :—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port, Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with :—

- Protozoal Infections
  - (Malaria, trypanosomiasis, leishmaniasis and others)
- Rickettsial Diseases
- Tropical Virus Diseases
  - (Yellow fever and others)
- Tropical Bacterial Diseases
  - (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin.*

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PAGE

The Eye as the Portal of Entry of Infections, by K. Papp, M.D. (Budapest) 969–971

PUBLIC HEALTH

SCOTLAND, DEPARTMENT OF HEALTH ... Report 1958 972

MIN. OF HEALTH, DEPT. OF HEALTH FOR SCOTLAND ... ... Report of Working Party on Social Workers in Local Authority Health & Welfare Services 972

KONG ... ... Health and Environment in Rural Malaya 973

GOLUBEV ... ... Methods for establishing Requirements Regarding Medical Staffs in U.S.S.R. 974

STEUART ... ... Importance of Programme Planning 974

MATERNAL AND CHILD HEALTH

DEPT. OF HEALTH FOR SCOTLAND ... Maternity Services in Scotland 974

RÄIHÄ ... ... Prematurity 975

BELLOC, MATTSON & SIMMONS ... Blindness in California Children 975

FLORENTIN ... ... Survey of Vitamin Intake in Infancy 976

RAMSAY & HARVEY ... ... Marking-Ink Poisoning 976

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

EDWARDS, MCKEOWN & WHITFIELD (i) Incidence of Disease and Disability in, (ii) Contributions and Demands of, Elderly Men 976–977

ROBERTS ... ... Boarding-Out of the Elderly 977

FUNGAL DISEASES of ANIMALS

by

G. C. AINSWORTH, Ph.D. F.L.S and
P. K. C. AUSTWICK, B.Sc. F.L.S.

This new publication is the first English text on this rapidly growing subject to which the authors have made many contributions.

Each of its 17 chapters deals with a specific disease or group of diseases such as ringworm, histoplasmosis, ergotism, bovine mycotic abortion etc.

8½×5½ xii+148 pp. 25 plates (8 in colour)

20/– or $3

Obtainable through any major bookseller or direct from

COMMONWEALTH AGRICULTURAL BUREAUX,
CENTRAL SALES BRANCH, FARNHAM ROYAL,
SLOUGH · BUCKS · ENGLAND

SOCIAL WORK IN TUBERCULOSIS

by

Margaret Coltart
Helen Raine
Elizabeth Harrison

CONTENTS: A Social Disease; Social Problems of Patients During Treatment; Readjustment Towards Normal Life; The Tuberculosis Service; A Look at the Past. *Appendices; Index.*

144 pages *12s. 6d.*

THE CHEST AND HEART ASSOCIATION

Tavistock House North, London, W.C.1

JOURNAL OF THE INSTITUTE OF SCIENCE TECHNOLOGY

The Official publication of the Institute of Science Technology.

It is a quarterly Journal with a monthly supplement—'The Bulletin'.

The Institute was founded in 1948 as a professional body for technicians in all branches of science employed in industry, agriculture, universities and research institutions throughout the United Kingdom, Eire, and the Commonwealth.

Specimen copies are available on application to: The Editor, Journal of the Institute of Science Technology, London School of Hygiene & Tropical Medicine, Keppel Street, London, W.C.1.

Subscription rates: £1 10s. 0d. per annum, post free.

ALLWIN INVALID CHAIRS

ALLWIN

THE TRANSIT CHAIR

This is one item from a wide range of Invalid Carriages including Car Chair, Commode Chair, Standard Chair and Travaux Chair. Please send for a comprehensive catalogue.

RICHARDS SON & ALLWIN LTD.
GREAT BRIDGE, TIPTON, STAFFS

Telephone: Tipton 1206/7 *Telegrams: Sidway, Tipton.*

VITAL STATISTICS AND EPIDEMIOLOGY

PAGE
General Register Office ... ... Social and Biological Factors in Infant Mortality 977
Antoine & Chollet ... ... Infant Mortality in Sahara Oasis in Constantine Area ... 978
Doll ... ... Methods of Geographical Pathology 978
Kidd & Park ... ... Long-Term Sickness in Northern Ireland 978

COMMUNICABLE DISEASES

Infective Diseases

Pub. Health, 1959 March ... ... Infectious Diseases 979
Giorn. di Malattie Infettive e Parassit ... ... Ninth and Tenth National Congresses of Italian Society for Study of Infective and Parasitic Diseases 980
Scrimshaw, Taylor & Gordon ... Interactions of Nutrition and Infection 981
Williams, Talbot & Maughan ... Hospital Outbreak of Cross-Infection due to Staphylococcus Pyogenes Phage Type 80 981
Ralston & Cowling ... ... Survey of Wound Infection at Royal Melbourne Hospital ... 981
Middleton ... ... Wound Infections 982
Forsgren & Varenius ... ... Nosocomial Staphyloccocal Infections in Neurosurgical Ward 982
Ranft-Häussler & Pöhn ... ... Spread of Staphylococcal Mastitis in Obstetric Hospital ... 982
Coles ... ... 12-Months' Survey of Staphylococcal Sepsis in Maternity Home 982
Klein & Rogers ... ... Use of Nasal Antibiotic Cream During Nursery Outbreak of Staphylococcal Disease 982
Norgaard ... ... Diphtheria Vaccination. Danish National Morbidity Survey, 1950 982
Jansson & Klemola ... ... Effect of Penicillin Therapy on Occurrence of Second Attacks in Scarlet Fever 983
Terragna ... ... Conjunctival Route in Measles 983
Karelitz & Isenberg ... ... Antibiotic Prophylaxis of Bacterial Complications of Measles 983
Mongan ... ... Treatment of Mumps Orchitis with Prednisone 983
Rev. d'Immunologie ... ... Seminar on Whooping Cough by International Children's Centre, Paris 984
Welsh, Denny & Bird ... ... Incidence and Significance of Leukemoid Reaction in Patients Hospitalized with Pertussis 985
Medical Research Council ... Vaccination Against Whooping-Cough. Final Report to Whooping-Cough Immunization Committee and to Medical Officers of Health for Battersea and Wandsworth, Bradford, Liverpool and Newcastle 985
Joó, Pusztai & Juhász ... ... Immune Responses to differently used Pertussis, Fluid and Adsorbate Vaccines 985
Aickin ... ... Incidence and Immunization against Whooping Cough in Dunedin 986
Lesne, Marie & Zourbas ... ... Vaccination against Whooping Cough and its Medico-Social Importance 986
Someya, Kaneko, Nakahara, Kaneko & Kodama ... ... Field Studies on Immunity of Pertussis 986
Crocker & Middelkamp ... ... Varicella Gangrenosa 986
Stallones & Lennette ... ... Outbreak of Asian-Strain Influenza in Closed Population ... 986
Burch, Walsh & Mogabgab ... Asian Influenza—Clinical Picture 987
Skanse & Miörner ... ... Asian Influenza with Adrenocortical Insufficiency 987
Bourne & Wedgwood ... ... Heart-Disease and Influenza 987
Forbes ... ... Severe Effects of Influenza Virus Infection 987
Stille, Woolridge & Gundelfinger Antibody Response to Intracutaneous and Subcutaneous Influenza Vaccination 987
Jackson & Dowling ... ... Transmission of Common Cold to Volunteers Under Controlled Conditions. IV. Specific Immunity 987
Liu, Eaton & Heyl ... ... Primary Atypical Pneumonia. II. Development and Immunological Characteristics of Antibody in Patients 988
Elmes, Dutton & Fletcher ... Sputum Examination and Investigation of "Chronic Bronchitis" 988
Zhumatov & Dardik ... ... Water-Borne Outbreak of Infective Hepatitis 988
Kheifets, Kamolikova & Kantorovich ... ... Outbreak of Infective Hepatitis in Arctic Settlement ... 988
Kaczmareck ... ... Serum Protein and Virus Hepatitis 989
Wang & Grayston ... ... Goat Red Blood Cells in Agglutination Test for Infectious Mononucleosis 989
Johnson, Ayvazian & Tillett ... Crystalline Pancreatic Deoxyribonuclease as an Adjunct to Treatment of Pneumococcal Meningitis 989
Gluschenko, Gutsevich & Dudkina Mosquitos as Vectors of Virus of Lymphocytic Choriomeningitis in Western Ukraine 989

BUREAU OF HYGIENE AND TROPICAL DISEASES

Pneumoconiosis Abstracts Volume III

(covering the years 1951-55)

This volume, reviewed in this issue, is a sequel to the 2 preceding volumes published in 1953 and 1954, containing abstracts which first appeared in the *Bulletin of Hygiene*. The set of 3 volumes contains a comprehensive collection of abstracts of the important papers published in this field during a period of 30 years.

In addition to abstracts on the various forms of pneumoconiosis, abstracts of articles are included which deal with standards of air dustiness; with concentrations of dust from various processes; with technical methods of measurement of dust; and with the study of the physical properties of dusts and of their chemical and mineralogical characters.

Pneumoconiosis Abstracts

Vol. I	1926-1938	319 pp.	63s.
Vol. II	1939-1950	480 pp.	80s.
Vol. III	1951-1955	355 pp.	65s.

Orders should be sent to

PITMAN MEDICAL PUBLISHING CO., LTD.
39, Parker Street, London W.C.2.

COMMUNICABLE DISEASES—*cont.*

Infective Diseases—*cont.*

		PAGE
Pattyn, Delville, Vandeputte & Peel	Epidemiology of Enteric Viruses in Africa	990
Reedy	Recessive Inheritance of Susceptibility to Poliomyelitis in 50 Pedigrees	990
Faro	Recurrent Paralytic Poliomyelitis	990
Stevens	Estimate of Molecular Equivalents of Antibody required for Prophylaxis and Therapy of Poliomyelitis	990
Barrett, Timm, Molner, Wilner, Fahey & McLean	Multiple Antigen for Immunization against Poliomyelitis, Diphtheria, Pertussis, and Tetanus. II. Response of Infants and Young Children to Primary Immunization and 18-month Booster	990
Baron, Barnett, Burch, Lynch & Ehrmantraut	Rapid Immunization with Poliomyelitis Vaccine	991
Pelner	Allergic Reaction to Poliomyelitis Vaccine probably due to Penicillin	991
Hale, Doraisingham, Kanagaratnam, Leong & Monteiro	Large-Scale Use of Sabin Type 2 Attenuated Poliovirus Vaccine in Singapore during Type 1 Poliomyelitis Epidemic	991
Daikos, Garzonis, Paleologue, Bousvaros & Papadoyannakis ...	Benign Myalgic Encephalomyelitis Outbreak in a Nurses School in Athens	992
Hill, Cheetham & Wallace ...	Epidemic Myalgic Encephalomyelopathy. Durban Outbreak	992
Lipton & Steigman	Allergic Encephalomyelitis. Extraction of Highly Active Fractions from Bovine Spinal Cord	993
Taytsch & Wróblewska	Natural Focus of Tick-Borne Encephalitis in Bialowieza National Park	993
Lachmajer, Skierska & Wegner ...	Rôle of Arthropods in Focus of Tick-Borne Encephalitis obtained in Bialowieza 1955–56	993
Kozłowski & Zukowski	Parasitic Gamasides in Bialowieza National Park	993
Kicinska	Epidemiological Investigations on Tick-Borne Encephalitis in Bialystok Province	993
Chinese Med. J.	Artificial Hibernation in Treatment of Epidemic Encephalitis Type B	994
Wiseman, Grimes & Eads	St. Louis Encephalitis Outbreak in Cameron County, Texas	994
Wallis	Host Feeding of *Culiseta morsitans*	994
Parikh & Thanawala	Tetracycline in Enteric Fever	995
Kopacka	Haemagglutination Test in *Salmonella* Infections	995
Fukaya, Suzuki, Ishii, Kawashima, Enomoto, Takayama & Kitamoto	Kanamycin in Bacillary Dysentery	995
Leppänen	Occurrence of various *E. coli* Serotypes, in inflamed and healthy appendices and faeces	995
Young, Warren & Lindberg ...	Absence of Intestinal Viral Flora in Infants during Epidemic of *E. coli* Gastro-enteritis	996
Aboul-Dahab, Tawil & Kholy ...	Response of Infantile Gastro-enteritis to Chloramphenicol ...	996
Roberts & Woodger	Neomycin in Control of Outbreaks of Infantile Gastro-enteritis	996
Hoekenga	Observations on Treatment of Infant Diarrhoea in Panama	996

Tuberculosis

Logan	Tuberculosis Deaths and Un-Notified Cases	997
Cartwright, Martin & Thomson	Community Aspects of Mass Radiography Campaign ...	997
Warawdekar & Shah	Pulmonary Tuberculosis in Contacts	998
Popp	Tuberculosis Coombs-Test	998
Flanagan & Hensler	Course of Active Tuberculosis complicated by Pregnancy ...	998
Frostad	Segmental Atelactasis in Children with Primary Tuberculosis	998
Smith	How Chronic is Pulmonary Tuberculosis in the Elderly? ...	999
Morton & Khan	Practical Routine for Presurgical Evaluation of Lung Function in Pulmonary Tuberculosis	999
Schnitser & Failie	Treatment of Pulmonary Tuberculosis by Means of Tracheal Inhalation of Streptomycin	999
Turner	Simplification of the Ferric Chloride Test for PAS in Urine	1000
Low	Relapse Rate in 2–11 year Follow-up Study of Patients with Pulmonary Tuberculosis treated with and without Antimicrobials	1000
Miller	Peripheral Tuberculous Lymphadenitis in Childhood ...	1000
Spiess	Period required for Establishment of Effective Immunity after Vaccination with BCG	1001

London School of Hygiene and Tropical Medicine

(UNIVERSITY OF LONDON)

Incorporating the Ross Institute

KEPPEL STREET, (GOWER STREET), LONDON, W.C.1

Dean: Sir James Kilpatrick, *K.B.E., C.B.*, M.B., D.P.H.

The London School of Hygiene and Tropical Medicine provides the following courses of instruction:

(1) **Academic Postgraduate Diploma in Public Health:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Fee: £73 10s.

(2) **Academic Postgraduate Diploma in Bacteriology:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Applications must be received not later than 1 March. Fee: £73 10s.

(3) **Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene:** The course commences at the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.T.M. & H. course extending over approximately the first 4½ months. Applicants must elect to study one of the following subjects at the final part of the course:—Clinical Tropical Medicine: Tropical Hygiene. Fee: £73 10s. (£42 for the C.T.M. & H. only).

(4) **Diploma in Tropical Medicine and Hygiene (England):** The course for the Conjoint Board's Diploma is held twice a year: from the beginning of October to mid-February and from the beginning of March to mid-July. Fee: £42.

(5) **Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology:** The course commences about the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.A.P. & E. course extending over approximately the first 4½ months. Fee: £73 10s. (£42 for the C.A.P. & E. course only).

(6) A course in **Statistical Methods applied to Medicine and Epidemiology** is held annually on two days a week from about the beginning of January to about the end of April. Students without a medical qualification can be accepted. Fee: £15 15s.

(7) **Public Health Engineering:** The course commences at the beginning of October and lasts for 9 months (whole-time). It is given in co-operation with Imperial College and is intended primarily for students with a university degree in civil engineering or an equivalent qualification. Applications to Imperial College. Fee: £60 plus £2 entrance fee.

(8) **Academic Postgraduate Diploma in Psychology:** Students who are registered for this Diploma at a College of the University may by arrangement attend lectures covering Part II, Section C (Occupational).

(9) **Diploma in Industrial Health:** The industrial health lectures and practical work arranged by the School for Diploma in Public Health students taking Industrial Health as their special subject are recognized by the Conjoint Board and by the Society of Apothecaries as fulfilling the requirements for entry to the D.I.H. examination.

(10) **Environmental Control:** A ten-weeks' course held twice in each academic year; commencing about the beginning of March and about the beginning of October. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: £27 6s. including registration fee.

(11) **Higher Degrees:** Facilities are provided for candidates studying for the degrees of Ph.D. and M.Sc. in appropriate subjects.

Clinical instruction is given at the Hospital for Tropical Diseases and elsewhere.

Enquiries should be addressed to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, (Gower Street), London, W.C.1. (Telephone: MUSeum 3041 and LANgham 7621).

COMMUNICABLE DISEASES—*cont.*

PAGE

Venereal Diseases

Merriweather ... ... Endemic Syphilis in the Bechuanaland Protectorate 1001
Portnoy ... ... Complement Fixation with Small Volumes of Reagents. *Treponema Pallidum* Complement-Fixation Test for Syphilis 1001
Ito, Fukui & Shiroshita ... ... Haemolysis on Paper. IV. Variation for Filter paper Method and its application 1002
Levy ... ... Treatment of Non-Gonococcal Urethritis with Spiramycin ... 1002

Other Communicable Diseases

Sarfaty ... ... Severe Tetanus Treated with d-Tubocurarine Chloride and Tank Respiration 1002

Zoonoses

World Health Organization ... Joint WHO/FAO Expert Committee on Zoonoses, Second Report 1002
Pane & Manzillo ... ... Brucellosis 1948–1957. Statistical Observations. 1002
Amanzhulov & Rementsova ... Simultaneous Vaccination of Humans against Tularaemia and Brucellosis 1003
Parnas *et al.* ... ... Leptospirosis of Scientific Expeditions 1954, 1955, 1956 and 1957 1003

DISEASES DUE TO FUNGI

English & Gibson ... ... Epidemiology of Tinea pedis. I. In Schoolchildren. II. Dermatophytes on Floors of Swimming-Baths 1004
Pardo-Castello, Trespalacios, Fariñas & Fernández Baquero Treatment of Superficial Mycoses of Skin with Griseofulvin 1004
Christie ... ... Disease Spectrum of Human Histoplasmosis 1005
Yamato, Hitomi, Maekawa, Mimura, Hamazaki, Ogawa & Uejima Case of Histoplasmosis. I. Clinical, Mycological and Pathological Observations 1005
Ann. Intern. Med. ... ... Cryptococcosis: Clinical Staff Conference at National Institutes of Health 1005
Nevill & Cooke ... ... Human Cryptococcosis in Kenya 1005
Frisk & Holmgren ... ... Amphotericin B in Cryptococcal Meningitis 1006
Fitzpatrick, Rubin & Poser ... Treatment of Cryptococcal Meningitis with Amphotericin B 1006
Smith & Yanagisawa ... ... Rhinomucormycosis. Fatal Case 1006

RHEUMATIC DISEASES

Feinstein & Di Massa ... ... Prognostic Significance of Valvular Involvement in Acute Rheumatic Fever 1006
Miller ... ... Prophylaxis of Rheumatic Fever and Rheumatic Heart Disease 1007

CANCER

Registrar General ... ... Statistical Review of England and Wales for Year 1953 ... 1007
Stocks ... ... Epidemiology of Cancer 1008
Berkson ... ... Statistical Investigation of Smoking and Cancer of Lung ... 1008
Hammond ... ... Inhalation in relation of Type and Amount of Smoking ... 1009
Camphyn ... ... Primary Tumours of Lung in Africans at Chest Clinic in Luluaborg 1009
Marneffe ... ... Malignant Tumours of Oto-rhino-laryngeal and Maxillofacial Areas in Ruanda-Urundi 1009

OCCUPATIONAL HYGIENE

Ann. Occup. Hyg. ... ... Noise in Industry 1010
Crouch & Andrews ... ... Reduction of Air Flow Noises 1011
Young ... ... Some Noise Control Methods used in Industrial Operations 1011
Strohmenger & Grün ... ... Health of Workers exposed to Heat Radiation 1012
Borneff ... ... Heat Radiation (i) in Ironworks (ii) in Glass Works ... 1012
Raffle ... ... Medical Examinations for Public Safety 1013

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes (*i.e.*, volumes other than those for the current year and the preceding year) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5. 10. 0. for the twelve monthly parts.

Also Published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

(ISSUED MONTHLY)

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. 6d. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 0d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller. Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Jones	Incapacity for Work among Insured Population of Great Britain	1013
Münk	Rehabilitation Lectures at Congress of Industrial Medical Association in Nuremberg, 1958	1013
Arnulf, Bricard, Burtin & Veret	Measurement of Droplets in Clouds by Direct Photography of Liquid Drops Suspended in Air	1014
Mansur, Pero & Krause	Vapour Phase Chromatography in Quantitative Determination of Air Samples collected in Field	1015
Pneumoconiosis Abstracts	Vol. III, Reproduced from *Bulletin of Hygiene*, 1951–55 ...	1015
Central Mining—Rand Mines Group. Health Dept.	Report for Year 1958	1015
Carstens, Brinkmann, Lange Meisterernst & Schlicht	Dust Disease of Miners	1016
Vigliani & Pernis	Immunological Factors in Pathogenesis of Hyaline Tissue of Silicosis	1016
Pernis, Gambini & Leavis ...	Heat-Labile Zymosan Agglutinating Factor observed in Rabbits after Intravenous Injections of Quartz	1016
Kern	Animal Experiments with Quartz-Containing Ash Obtained from Lungs of Acute and Chronic Silicotic Subjects ...	1017
Igaku Kenkyu	Papers on Experimental Silicosis	1017
Ann. des Mines	Prevention of Silicosis-Dust Masks	1018
Lotta c. la Tubercolosi	Fourteenth Italian Congress on Phthisiology, Cagliari, 1958	1018
Nordvik	Are Silicosis and Asbestosis predisposing Causes of Cancer of Lung?	1020
Bohlig, Jacob & Kallabis	Morbidity and Pathology of Lung Cancer with Asbestosis ...	1020
Hirsch, Kass, Schaefer & Denst	Infection with Atypical Tubercle Bacilli in Graphite Pneumoconiosis	1021
Tiller	Byssinosis in Rayon Mill	1021
Tiller & Schilling	Respiratory Function during Day in Rayon Workers—Byssinosis	1021
Stott	Pulmonary Disease Amongst Sisal Workers	1021
Schepers	Pulmonary Reaction to Sheet Fiberglas-Plastic Dust ...	1022
Desoille, Hadengue & Feletin ...	Respiratory Distress induced by Gum Arabic	1022
Fleisch	Metabograph, Apparatus for Direct Measurement in Man of Oxygen Consumption Production of Carbon Dioxide, Tidal and Minute Volumes, Ventilatory Equivalent and Respiratory Quotient	1022
Dinischiotu, Radulescu, Preda & Georgescu; Dinischiotu, Radulescu & Muica	(i) Clinical Categories, (ii) Haemo-dynamic Studies in Industrial Lead Poisoning	1022–1023
Tada	On Lead Content of Whole Blood	1023
Miki	Studies on Lead Content in Bodies of Test Animals. I. In Blood, Urine and Faeces of Rabbits	1023
Teisinger & Srbová	Value of Mobilization of Lead by Calcium Ethylene-Diamine-Tetra-Acetate in Diagnosis of Lead Poisoning	1024
Glömme & Gustavson	Treatment of Experimental Acute Mercury Poisoning by Chelating Agents BAL and EDTA	1024
Bonnell, Kazantzis & King ...	Follow-Up Study of Men exposed to Cadmium Oxide Fume	1025
Walkley	Morin Method for Determination of Beryllium in Air Samples	1025
Gadrat, Quercy & Fedou	Atypical Blood Changes after Chronic Benzene Poisoning ...	1025
Gildenskiold	Maximum Permissible Concentration of Carbon Bisulphide in Atmospheric Air of Residential Districts	1026
Levinskas & Paslian	Decarborane Effects upon Yeast Metabolism	1026
Fristedt & Ohlsson	Toxic Risks of Use of Organic Phosphates	1026
Berry, Davies & Green	Oximes of αω-Diquaternary Alkane Salts as Antidotes to Organophosphate Anticholinesterases	1026
Hobbiger & Sadler	Protection against Lethal Organophosphate Poisoning by Quaternary Pyridine Aldoximes	1027
Ministry of Health. Dept. of Health for Scotland	Radiological Hazards to Patients	1027
Baier	Radiation—Photofluorographic Study	1027
Ganatra	Haematological Findings in Persons working in X-Ray Dept.	1028
Saslaw & Carlisle	Effect of Total Body X-Irradiation on Antibody Response of Monkeys	1028
Davis & Parks	Radiation Hazards from Clinical Use of Radioactive Isotopes	1028
Hyatt	Health Hazards associated with Rolling Normal and Enriched Uranium	1028
Blackwell	Surface Contamination Control with Uranium Rolling Operations	1029
Johnson, Kindsvatter & Shaw ...	Radiation Hazards aboard a Guided Missile Cruiser ...	1029

OCCUPATIONAL HYGIENE—*cont.*

		PAGE
Whitson & Kwasnoski	Determination of Alpha Activity associated with Sub-Microgram Quantities of Enriched Uranium in Urine	1029
Norwood	Determination of Injury from internally deposited Radioisotope Plutonium	1029
Arch. Malad. Professionnelles	Radio-active Substances and Occupational Disease: Value of Measures for Supervising Workmen	1029
Toulet; Tabernat	Decontamination of Skin after Exposure to Radiation	1030

SANITATION

Water and Swimming Baths

Jebb	Comparison of Media for Detection of Coliform Organisms in Water	1030
Buttiaux	Bacteriological Control of Mineral Waters	1030
Fraser & Fairhall	Lead Dissolution from Red-Lead Paints in Water	1031
Elkins	Lead Content of Water from Tanks painted with Red Lead	1031

Sewage, Trade Waste and Refuse Disposal

Grune, Bartholomew & Hudson	Effects of Radioactive Materials on Anaerobic Digestion. I. Radiophosphorus. II. Radio-iodine	1031
Spargo	Synthetic Detergents: Results of their Degradation on Johannesburg Sewage Works and Streams	1032
Lapucci	New System of Treating Meat-Packing and Slaughter-House Wastes	1032
Klimkina	Hygienic Standards for Harmful Waste Products of Synthetic Isoprene Rubber Industry contained in Water Basins	1032

Rodent Infestation

Bentley & Larthe	Comparative Rodenticidal Efficiency of 5 Anti-Coagulants	1032

FOOD AND NUTRITION

Foodstuffs

Kovacs	Salmonellae in Desiccated Coconut, Egg Pulp, Fertilizer, Meat-Meal and Mesenteric Glands	1033

Food Poisoning

Calisti & Duranti	Serious Food-Poisoning Incident due to Salmonella	1033
Masi, Timothee, Armijo, Alonso & Mainardi	2 Poisoning Outbreaks in Puerto Rico from Salt Preserved Codfish	1034
Power	Outbreak of *Clostridium welchii* Toxin Food Poisoning	1034

BACTERIOLOGY AND IMMUNITY

General

Walter & Chaffey	Bacteriological and Cleaning Studies on Mouthpieces of Musical Instruments	1034

Bacteriostatic and Bactericidal Substances; Disinfection

Siegenthaler	Significance of Old and New Chemotherapeutic Agents in Clinic and Practice	1035
Reimelt	Bacteria Spraying Apparatus for Test Purposes in study of Antibiotics	1035
Linz & Lecocq	On Bacteria Surviving Action of Penicillin	1035
Bernstein & Houser	Sensitivity Reactions to Intramuscular Injection of Banzathine Penicillin	1035
Lück & Rickerl	Additives to Foodstuffs and Mutagenic Action. Report V. Production of Streptomycin Resistance in *E. coli* by Benzoic Acid and *p*-oxybenzoic ethyl ester	1036
Kurkcuoglu & McElfresh	Anti-coagulant Property of Antibiotics from Streptomyces Species Relation to Ecchymoses at Injection Sites	1036

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances; Disinfection—*cont.*

PAGE

Hirsch & Finland ... Antibacterial Activity of Serum of Normal Subjects after Oral Doses of Demethylchlortetracycline, Chlortetracycline and Oxytetracycline ... 1036
Domz, McNamara & Holzapfel ... Tetracycline Provocation in Lupus Erythematosus ... 1036
Smith & Soderstrom ... Clinical Experience with New Erythromycin Derivative ... 1037
Dearing & Needham ... Effects of Oral Use of Neomycin plus Bacitracin on Intestinal Flora of Man ... 1037
Herting, Lees, Zimmermann & Berryman ... Ristocetin—Statistical Review of 333 Cases ... 1037
Thornley; Yudkin; Sinai ... Origin of Bacterial Resistance to Proflavine. I. Training and Reversion in *E. coli*. II. Spontaneous Mutation to Proflavin Resistance in *E. coli*. III. Alleged Rapid Adaptation to Proflavine Resistance in *Bacterium Lactis aerogenes*. IV. Cycles of Resistance in *E. coli* and their Bearing on Variations in Resistance in Cultures. V. Transformation of Proflavine Resistance in *E. coli* ... 1037
Zaeva; Alekseeva; Ratenberg; Koptelova Medne; Spure ... Experimental Studies of (i) Furazidine. (ii) Furazolidone 1038
Chenchikova & Shavyrina ... Sporocidal and Bactericidal Properties of 1:3-Dichloro-5: 5-Dimethylhydantoin ... 1038
Deut. Gesellschaft f. Hyg. u. Mikrobiol. ... Correct Procedures for Testing Chemical Disinfectants ... 1038

Individual Bacteria

Gevaudan, Tamalet & Gay ... Comparative Survival of *E. coli* and *Salm. typhi* in Sea Water of the Mediterranean Coast ... 1039
Kiesewalter ... Suitability of 0-1 Phage Test in Identification of Salmonellae ... 1039
Thomason, Cherry & Edwards ... Staining Bacterial Smears with Fluorescent Antibody. VI. Identification of Salmonellae in Faecal Specimens ... 1039
Rische & Schneider ... Subdivision of Typhoid Bacilli Lysotype E according to Brandis ... 1040
Dotti & Casetta ... Pathogenicity and Fimbriation in *Salm. typhi*. ... 1040
Grabar ... Tissue reactions of Mice to certain Vaccines prepared from *Salmonella* Strains pathogenic and non-pathogenic for mice 1040
Le Minor, Thome, Perreau & Charie-Marsaines ... New *Salmonella* Serotype: S. Farcha ... 1040
Vaněcek, Raskova, Jelínek, Raska & Matějovská ... Changes of *Sh. shigae* Toxin Toxicity induced by Phenol ... 1040
Luria & Burrous ... Hybridization between *E. coli* and Shigella ... 1041
Taylor ... *E. coli* as an Enteropathogen ... 1041
Rogers, Dowse & Hall ... Techniques used in Routine Examination of Specimens for Specific Serological Types of *E. coli* ... 1041
Wollman & Jacob ... Process of Conjugation and Recombination of *E. coli*. V. Mechanism of Transfer of Genetic Material ... 1041
Bartlett & Hinshelwood ... Drug Resistance of Bacterial Recombination ... 1042
Koch ... Death of Bacteria in Growing Culture ... 1042
Stewart ... Phenylalanine Test on Kligler's Iron Agar for Identification of *Proteus* ... 1042
Marks ... Simple Method for Cultivation of Tubercle Bacilli ... 1043
Hirsch & Cattaneo ... Identification of *Mycobacterium* strains by means of a 2, 3, 5-triphenyl-tetrazolium-chloride medium ... 1043
Degommier ... Fluorescence and Relative Acid-Alcohol-Fastness of Tubercle Bacilli ... 1043
FitzPatrick ... Kanamycin against *Myco. tuberculosis* ... 1044
Howard, Biozzi, Halpern, Stiffel & Mouton ... Effect of *Myco. tuberculosis* Infection on Resistance of Mice to Bacterial Endotoxin and *Salm. enteritidis* Infection ... 1044
Schwabacher ... Strain of *Mycobacterium* isolated from Skin Lesions of Cold-Blooded Animal and its relation to Atypical Acid-Fast Bacilli occurring in Man ... 1044
Aronson & Kraus ... Correlation of Reaction to Protein from certain Mycobacteria with Reaction to Tuberculin ... 1045
Hill ... Adansonian Classification of Staphylococci ... 1045
Harrison, Beavon & Griffin ... Effect of Neomycin on Phage-Typing of Staphylococci ... 1045
Taplin & Goldsworthy ... Comparison of Strains of *Staphylococcus* isolated from Mouth of 2 different Groups of Children ... 1045
Hunt & Moses ... Acute Infection of Mice with Smith Strain of *Staph. aureus* 1045

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
North	Adverse Effect of Filtration on Immunizing Power of Staphylococcal Toxin and Toxoid	1046
Fisher	Measurement of Staphylococcal Antibody in Human Serum by Mouse Protection Test	1046
Mitchell & Moyle	Permeability of Envelopes of *Staph. aureus* to some Salts, Amino Acids, and Non-Electrolytes	1046
Wood & Schramm	Precipitin Reaction Obtainable between Human Serum and Extracts of Group A, Type 15 Streptococci	1047
Heyl	Stability of Reduced Fluid Streptolysin O	1047
Liampert	Rapid Increase in Resistance to Erythrogenic Toxin of Haemolytic *Streptococcus* after its Parenteral Injection ...	1047
Berger	Treatment of Streptococcal Infections with Nitrofurazon ...	1047
Kamal	Cultivation of *Br. abortus* in Developing Chick Embryo. II. Egg-Passage Strain, Inoculation with Rough and Mucoid Forms and Histology of Infected Tissues ...	1047
Markenson, Sulitzeanu & Olitzki	Immunizing properties of Insoluble Cell Material derived from *Brucella*	1047
Brumfitt	Some Growth Requirements of *H. influenzae* and *H. pertussis*	1048
Lin, Liu & Wu	Use of Blood- and Charcoal-Free Medium Preparation of Pertussis Vaccine	1048
Barber & Soare	On the Chemical and Antigenic Structure of *H. pertussis* ...	1048
Pozsgi, Faur & Andreesco-Tigoiu	Some Aspects of Directed Variability in *H. pertussis* ...	1048
Lin	Experimental Whooping Cough in Monkey	1048
Dolby	Separation of Histamine-Sensitizing Factor from Protective Antigens of *B. pertussis*	1048
Niwa; Yamadeya; Matsui; Kuwajima; Kishigami	Reduced Activity of Histaminase in Rats sensitized by *B. pertussis*	1049
Kuwajima, Matsui, Naka & Kanai	Inability of Pertussis Toxin to act as Preventive Antigen in Experimental Mouse Infection of *B. pertussis* ...	1049
Kratochvílová, Jelínek & Raska	Vaccination during Incubation Period. II. Comparison of Intranasal and Intracerebral Infection with *H. pertussis*	1049
Yamamoto *et al.*	*H. pertussis.* XI. Antitoxic Tissue Immunity	1049
Sato	Fractionation of *H. pertussis* Antitoxin	1049
Sato, Tenjin & Iida	Fractionation of *H. pertussis* Antiserum Proteins	1050
Kasuga, Ukishima & Nakase ...	Antigenic Structure and Phases of *H. parapertussis*	1050
Gastinel, Collart & Dunoyer ...	Behaviour of Reiter's *Treponema* in Penicillin-containing Media	1050
Mutermilch, Gérard & Delaville	Reiter's *Treponema*	1050

Fungi

Grin	Influence of Soil and its Micropopulation on Pathogenic Dermatophytes in Parasitized Hair	1051
Edwards, Edwards & Hazen ...	Electron Microscopic Study of Histoplasma in Mouse Spleen	1051
Blyth	Host/Parasite Relationship in Experimental Moniliasis: I. *C. albicans*	1051

Bacteriophages

Uetake, Luria & Burrous	Conversion of Somatic Antigens in *Salmonella* by Phage Infection leading to Lysis or Lysogeny	1052
Beumer-Jochmans, Dirkx & Oleffe-Koopmanisch	Effect of Calcium on Phage Penetration into certain Sensitive Bacteria	1052
Mercer	Electron Microscopic Study of Thin Sections of Bacteria and Bacteriophage Grown on Agar Plates	1052
Bhaskaran	Nature of Genetic Recombination in *V. cholerae*	1053
Zierdt	Preservation of Staphylococcal Bacteriophage by means of Lyophilization	1053
Pospelova	Biological Characteristics of Diphtheria Phages. II. Phage Adsorbability	1053
Drozhevkina & Kharitonova ...	Lysogeny in Brucella	1053

Viruses

v. Kerékjártó & Hieronymi ...	(i) Multiplication of Certain Viruses Pathogenic for Animals in Cultures of Pig Kidney Epithelial Cells. (ii) Use of Sheep Kidney Cell Cultures in Virology	1054

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

		PAGE
Wheeler & Canby	Influence of Specific Antibody on Herpes Simplex Infections in Tissue Culture	1054
Dumbell & Nizamuddin	Agar-Gel Precipitation Test for Laboratory Diagnosis of Smallpox	1054
Fauconnier	Use of Hyperformolized Erythrocytes in Virology	1054
Nastac	Effect of Mumps Virus on Spontaneous Rat Sarcoma	1055
Hinz & Syverton	Mammalian Cell Cultures for Study of Influenza Virus. I. Preparation of Monolayer Cultures with Collagenase. II. Virus Propogation	1055
Paucker; Birch-Anderson; Von Magnus	Structure of Influenza Virus. I. Components of Infectious and Incomplete Particles. II. Ultrathin Sections of Infectious and Non-infectious Particles	1055
Reinhard & McGraw	Simple Means of obtaining Concentration of Influenza Haemagglutinating Antigen	1056
Drescher & Lange	Determination of Haemagglutinin and Antibody. IV. Photometric Procedure for Determination of Specific and Unspecific Inhibiting Antibodies	1056
Seto, Hickey & Rasmussen	Some Biological Characteristics of Asian Influenza Isolates	1056
Polley	Variables influencing Preparation of Influenza Vaccines with Formaldehyde	1056
Andrewes, Bang, Chanock & Zhdanov	Para-Influenza Viruses 1, 2, and 3	1056
Perkins & Evans	British Standard Poliomyelitis Antisera Types 1, 2, and 3	1057
Papapanagiotou	Isolation of Polioviruses Type I, II and III from Stool Specimens from Greece, 1958	1057
Eklund, Hadlow, Pickens & Gerloff	Detecting Poliovirus in Vaccine Lots Used in Idaho in 1955	1057
Prigge, Günther & Bonin	Potency Testing of Poliomyelitis Vaccines	1058
Paul, Gupta & Gupta	Enteric Viruses from Sporadic Cases of Aseptic Meningitis/Encephalitis	1058
Hammon, Yohn & Pavia	ECHO Virus Type 12, Isolation and Characteristics	1058
Winn & Bennington	Attempt to Recover WEE from Nasal Mites of Sparrows	1059
Traub	Immunity of White Mice to Equine Encephalomyelitis Virus. I. Effect of Immune Serum *in vivo*	1059
Lavillaureix & Reeb	Culture of West Nile Virus *in vitro*	1059
Spence & Thomas	Application of Haemagglutination and Complement-Fixation Techniques to Identification and Serological Classification of Arthropod-Borne Viruses	1059
Verge, Paraf & Asso	Specific Adaptation of Viruses in relation to Age of Animals	1060
Jones, Collier & Smith	Isolation of Virus from Inclusion Blennorrhoea	1060

Immunity

Neipp, Kunz & Meier	Selective Enhancement of "Natural" Resistance to Bacterial Infections by Polysaccharides and other Preparations	1060
Fishman	Antibody Formation in Tissue Culture	1060
Arday, Pillemer & Lepow	Properdin System and Immunity. VIII. Purification and Properties of Third Component of Human Complement	1061
Wilde & Naumann	Immunological Investigations in Adrenectomized Animals	1061
Furness	Effect of Cortisone on Macrophages on Different Species of Animal	1061
Nelson & Becker	Effect of Whole-Body X-Irradiation on Bactericidal Activity of Phagocytic Cells. I. Survival of *Ps. aeruginosa* within Phagocytes from Peritoneal Exudates of Mice. II. Survival of *Ps. aeruginosa* within Livers and Spleens	1062
Stoloff, Haurani, Repplinger & Havens	Effects of Total-Body Irradiation on Production of Antibody in Man	1062

MISCELLANEOUS

Snyder	Ethics and Public Health	1063

BOOK REVIEWS

		PAGE
WHITE, HANDLER, SMITH & STETTEN	Principles of Biochemistry	1063
ROBERTS	Introduction to Medical Genetics	1064

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

OCCUPATIONAL HYGIENE

ATMOSPHERIC POLLUTION

OCCUPATIONAL PSYCHOLOGY

PHYSIOLOGY AS APPLIED TO HYGIENE

HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER)
including Index 30/– ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET LONDON W·C·I *TELEPHONE: MUSeum 3041*

treatment

suppression

eradication

'daraclor'

BRAND

TABLETS

the **new** all-purpose antimalarial

Treatment 'DARACLOR' ensures swift and efficient control of the acute attack. In semi-immunes, a single dose is sufficient.

Suppression 'DARACLOR' is without question the most powerful suppressant of malaria now available.
With 'DARACLOR', the development of parasite-resistance is extremely unlikely.

Eradication By virtue of its combined schizonticidal, suppressant, and sporontocidal properties, 'DARACLOR' is unsurpassed as an adjuvant to vector control. Mass 'single-dose' distribution is suggested as a follow-up to spraying campaigns.

In eradication programmes, for protection of troops and labour forces, and for treatment and protection of the individual . . .

'daraclor'

is the **complete** antimalarial

(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base.)

BURROUGHS WELLCOME & CO., LONDON
(The Wellcome Foundation Ltd.)
THE WELLCOME BUILDING, EUSTON RD., LONDON, N.W.1

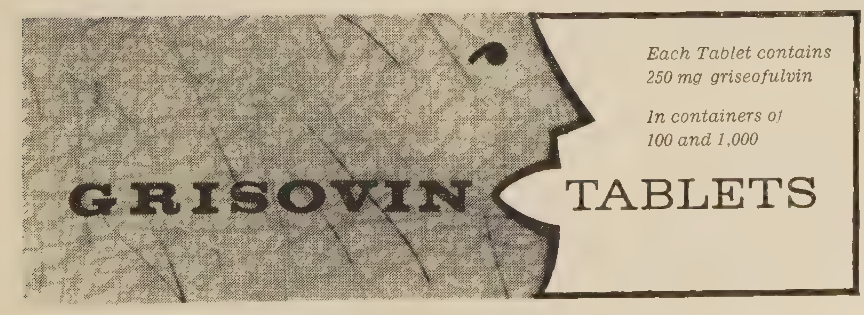
MILESTONE IN DERMATOLOGY

THE FIRST
ORAL
GRISOVIN
treatment for fungal
infections of skin

Griseofulvin is a Glaxo research development. In extensive trials conducted in Britain, the USA and Austria, griseofulvin, given by mouth, has demonstrated quite remarkable and consistent activity against dermatophyte infections of the skin, hair and nails. Infections even of many years duration have made a striking response to this unique substance.

" A new era in the therapy of many of the common mycotic infections of the human skin, hair and nails may be at hand with the discovery of the almost unbelievable therapeutic effectiveness of the oral antibiotic, griseofulvin "

Sulzberger, M.B. and Baer, R.L. Milestones in Dermatology XXXIX Griseofulvin. An Oral Antibiotic for the Treatment of Many Common Fungous Infections of the Skin, Hair and Nails. Excerpta Medica, 1959, 13 (Section XIII) 145.


Each Tablet contains
250 mg griseofulvin
In containers of
100 and 1,000
GRISOVIN
TABLETS

GLAXO LABORATORIES LTD, GREENFORD
MIDDLESEX BYRON 3434
Subsidiary Companies or Agents in most countries
GRISOVIN IS A GLAXO TRADE MARK

STAFF OF THE BUREAU

Charles Wilcocks, *C.M.G.*, M.D., F.R.C.P., D.T.M. & H., *Director*
H. J. O'D. Burke-Gaffney, *O.B.E.*, *O.St.J.*, B.A., M.D., *Assistant Director*
Arthur H. Phipps, B.Com., *Secretary*
Joan E. D'Arcy Hart, *Assistant Secretary*

Denise Bairstow
Betty Baldwin
Peggy Carolan
Brenda White
Veronica Collings, B.A.
Frederick W. Norfolk
Margaret Weight

LIST OF CONTRIBUTORS IN THIS ISSUE

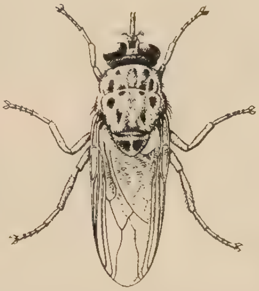
Peter Abbott, M.A., M.D., M.R.C.P., D.T.M. & H.
E. Agius, M.D., D.P.H., Dip.Bact.
G. C. Ainsworth, B.Sc., Ph.D.
H. Stanley Banks, M.A., M.D., F.R.C.P., D.P.H.
J. M. Barnes, M.B., B.Chir.
D. J. Bauer, Ph.D., M.B., B.Chir.
A. John Beale, M.D., Dip.Bact.
Sir Samuel Bedson, D.Sc., M.D., F.R.C.P., F.R.S.
Lt.-Col. H. J. Bensted, *O.B.E.*, *M.C.*, M.R.C.P.
J. C. Broom, *O.B.E.*, M.D.
Mrs. Ethel Browning, M.D.
S. R. M. Bushby, M.Sc., Ph.D.
H. G. Calwell, B.A., M.D., D.T.M. & H.
A. B. Christie, M.A., M.D., D.P.H.
S. T. Cowan, D.Sc., M.D., M.R.C.S., L.R.C.P.
Sir Allen Daley, LL.D., B.Sc., M.D., F.R.C.P., D.P.H.
Professor M. E. Delafield, *M.C.*, M.B., B.Ch., D.P.H.
Richard Doll, *O.B.E.*, D.Sc., M.D., F.R.C.P.
W. K. Dunscombe, M.D., D.P.H., D.T.M. & H.
A. S. Fairbairn, M.B.
Mrs. M. Patricia Fitzsimons, M.R.C.S., L.R.C.P., D.I.H.
T. O. Garland, M.A., M.D., D.P.H.
Professor L. P. Garrod, M.D., F.R.C.P.
H. Gooder, Ph.D., A.R.I.C.
Miss Elizabeth M. Harper, B.Sc., Ph.D.
Professor A. Bradford Hill, *C.B.E.*, D.Sc., Ph.D., F.S.S., F.R.S.
Derek Hobson, M.D., M.R.C.S.
Professor J. W. Howie, M.D., M.R.C.P.
Peter C. G. Isaac, B.Sc.(Eng.), S.M., M.I.C.E., F.R.San.I., M.I.W.E., M.Inst.S.P.
Mrs. Margot Jefferys, B.Sc.(Econ.)
Miss M. Patricia Jevons, M.D., Dip.Bact.
A. Joe, *D.S.C.*, M.D., F.R.C.P.Edin., D.P.H.
Colin Kaplan, M.Sc., M.B., Ch.B.
J. C. Kelsey, M.B., B.Chir.
C. J. La Touche, M.Sc., L.A.H.
Professor J. W. McLeod, Sc.D., M.B., Ch.B., F.R.S.
J. Pickford Marsden, M.D., D.P.H.
W. J. Martin, D.Sc., Ph.D.
Andrew Meiklejohn, M.D., M.R.C.P., D.P.H.
G. Nagelschmidt, D.Phil., F.G.S.
T. E. Osmond, B.A., M.B.
H. G. Pereira, M.D.
Professor D. D. Reid, Ph.D., M.D., M.R.C.P.
D. Rivers, M.D., L.M.S.S.A.
Professor S. Russ, *C.B.E.*, D.Sc.
Sir William Savage, B.Sc., M.D., D.P.H.
D. D. Smith, M.B., Ch.B.
C. E. Gordon Smith, M.D.
Mrs. Janice Taverne, B.A., Ph.D.
E. Windle Taylor, M.D., D.P.H.
M. L. Thomson, B.Sc., Ph.D., M.B., Ch.B.
B. B. Waddy, D.M., D.P.H.
Lt.-Col. J. H. Walters, M.D., F.R.C.P.
Robert Weaver, M.D., D.P.H., F.D.S.
Charles Wilcocks, *C.M.G.*, M.D., F.R.C.P., D.T.M. & H.
R. E. O. Williams, B.Sc., M.D.
C. H. Wood, M.B., B.S., M.R.C.S., L.R.C.P., D.P.H., S.M.Hyg.(Harvard)
Frederick J. Wright, M.A., M.D., F.R.C.P., F.R.C.P.Edin., D.T.M. & H.
F. H. Young, *O.B.E.*, B.A., M.D., F.R.C.P., D.P.H.

Forbidden entry

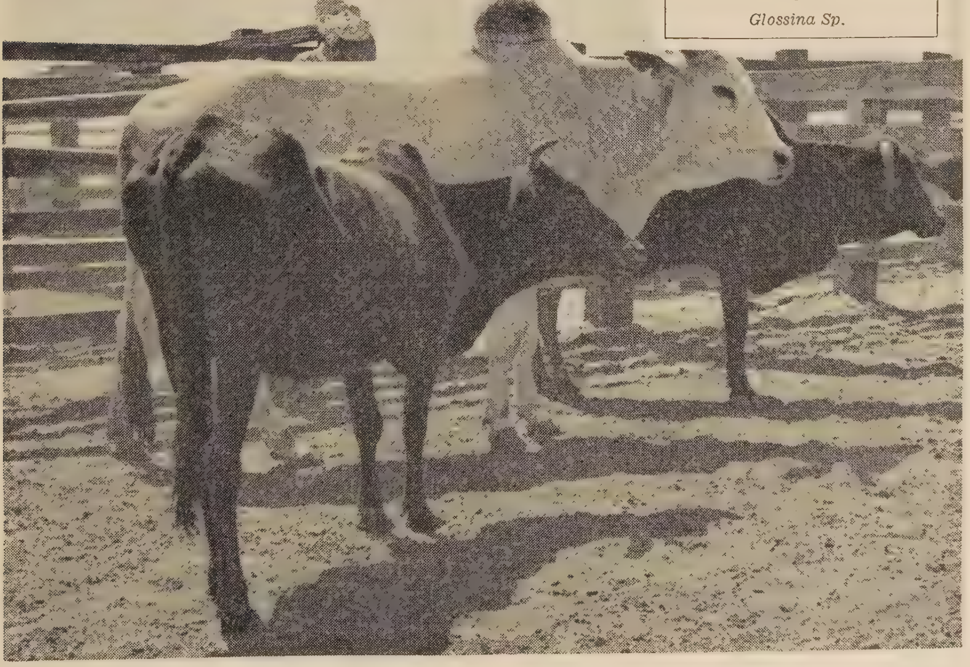
Tsetse, the vector of *trypanosomiasis*, is a dread word in Africa—six letters which mean sleeping sickness in man and *ngana* in cattle. Tsetse is a keep-out word which few care to ignore and because of it vast areas of land potentially suitable for the development of mixed farming are still denied farmers for stock grazing. These areas are valuable to Africa's growing population, and active measures are being taken in an intensified effort to eradicate the fly. Until recently, tsetse control depended largely on total and selective bush clearing, game control and settlement, but none of these has proved entirely satisfactory; while total clearing can in fact achieve eradication, the cost is prohibitive. Spraying with insecticides has, however, shown extremely encouraging results, and it is now an established method to control lake shore and riverine tsetse in Kenya. Of the insecticides tested, dieldrin has proved to be the most active and persistent, and by using it, the previous high dosage rates and frequencies of application can be reduced *with no reduction in efficiency*. This has led to effective control at substantially reduced costs.

dieldrin

Dieldrin, aldrin, endrin and Phosdrin are Shell insecticides for world-wide use.



Glossina Sp.



Issued by Shell International Chemical Company Limited and Bataafse Internationale Chemie Mij. N.V.
For further information consult your Shell Company (in the U.K., apply to Shell Chemical Company Limited).

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port, Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with:—

- Protozoal Infections (Malaria, trypanosomiasis, leishmaniasis and others)
- Rickettsial Diseases
- Tropical Virus Diseases (Yellow fever and others)
- Tropical Bacterial Diseases (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin*.

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PUBLIC HEALTH

PAGE

Brockington ... ... Public Health at the Privy Council, 1858–71 1065
Brown & Thornton ... ... William Odling as Medical Officer to Lambeth 1856–60 ... 1066
Densen, Shapiro & Einhorn ... High and Low Utilizers of Service in Medical Care Plan ... 1066
Hrubec ... ... Association of Health and Social Welfare Problems in Individuals and their Families 1066

MATERNAL AND CHILD HEALTH

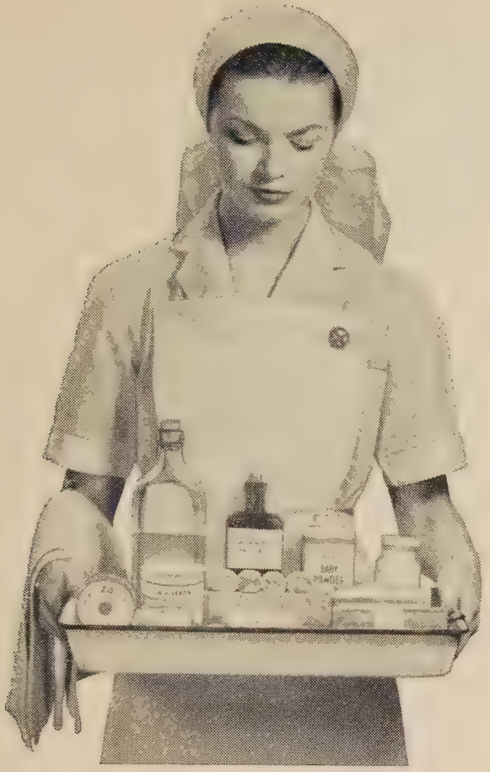
Burden ... ... Demand Feeding and Rooming-In of Babies 1067
Lewis ... ... Health of Pre-School Age-Group in African Urban Community 1067
Cook ... ... Starting School: Socio-Medical Problem 1068
Goddard ... ... Accident Prevention in Childhood 1068
Haggerty ... ... Home Accidents in Childhood 1069

CARE OF OLD PERSONS AND THE CHRONICALLY ILL

World Health Organization ... Mental Health Problems of Aging and Aged 1069

VITAL STATISTICS AND EPIDEMIOLOGY

Alison & Corone ... ... (i) Mortality of Children Aged 1–14 Years and Adolescents of 15–19 in France 1955–57. (ii) Stillbirth and Infant Mortality Rates in France 1957 1070



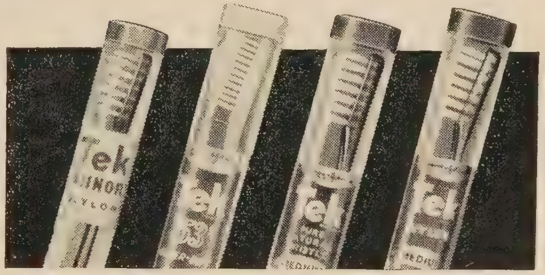
First choice in hospitals and homes

In hospitals throughout the world, where only the highest standards are acceptable, Johnson & Johnson's famous products are in constant daily use. For Johnson & Johnson is the largest organisation of surgical dressing manufacturers in the world, with the widest obtainable range of surgical dressings and nursing specialities of all kinds.

Your patients know and trust Johnson's Baby Products. The range includes every essential for a baby's care and comfort—baby powder, soap, cream and lotion and a new liquid shampoo, which cannot burn or sting the eyes.

Tek toothbrushes, also, are chosen for their outstanding quality. The range includes both nylon and bristle brushes, the super-soft Tek 53 and Tek minor, specially designed for children.

BABY LOTION
BABY POWDER
SOAP
BABY SOAP



SDBP/1/58

Johnson & Johnson's range of world-renowned products include:

JOHNSON'S BABY POWDER, BABY CREAM, BABY OIL, BABY SOAP, BABY SHAMPOO, BABY LOTION, BAND-AID FIRST AID DRESSINGS (ELASTIC AND PLASTIC), 'ZO' AND 'ZONAS' SPOOL PLASTERS, FIRST-AID KITS, 'ELASTIKON' ADHESIVE PLASTERS, FOOT PRODUCTS, 'MODESS' PERSONAL PRODUCTS

J&J

Johnson & Johnson

The World's most trusted name in Surgical Dressings and Baby Products

VITAL STATISTICS AND EPIDEMIOLOGY—*cont.*

		PAGE
Candiotti & Moine	Social Aspects of Death Rates and Birth Rates in France	1070
Dabb	Deaths among African Children	1071
Gardiner	Maori Infant Mortality	1071
Padley	Cause-of-Death Statements in Ceylon	1072
Spicer & Lipton	Numerical Studies on some Contagious Distributions	1072

COMMUNICABLE DISEASES

Infective Diseases

Ranking	Antibiotic-Resistant Staphylococcal Disease	1073
Weinstein	(i) Relation between Nasal-Staphylococcal-Carrier State and Incidence of Postoperative Complications. (ii) Control of Nasal-Staphylococcal-Carrier States	1073
Sever	Possible Role of Humidifying Equipment in Spread of Infections from Newborn Nursery	1073
Ocklitz & Romeikat	Prevention of Contact Infection in Nursing Procedures in Maternity Hospital Ward	1074
Levine & Wyman	Factors affecting Efficiency of Combined Prophylactics: Effect of Poliomyelitis Vaccine on Diphtheria Toxoid	1074
Tishchenko & Primak	Epidemiological Importance of Scarlet Fever Patients treated at Home, and Secondary Complications occurring in such Patients	1074
Markham	Streptococcal Infections	1074
Saslaw & Streitfeld	Recovery of β-haemolytic Streptococci from Throats of Mother and Child: Relationship to Respiratory Illness	1074
Esmann	Streptococcal and Non-Streptococcal Sore Throat	1074
Jurow & Clark	Erysipelas in Pregnancy. Fatal Case	1075
Valle & Teixeira	Treatment of Whooping Cough with Intramuscular Oxytetracycline	1075
Cross	Vaccination Technique and Control of Smallpox Epidemics	1075
Semple, Parry & Hobday	Anti-vaccinial Gamma Globulin. Smallpox Prophylaxis	1075
Fry	Influenza 1959. Epidemic	1075
Melnotte	Pandemic of Influenza 1957–58	1076
Cocuzza & Roccuzzo	Antibodies to Sendai Virus in Normal Population of Sicily	1076
Grayston, Wang & Pierce	Recurrence of Asian Variant Influenza in Far East. 1958 Epidemic in Marine Corps, Okinawa	1076
Masi, Timothee, Janer & Mariñelarena	Asiatic Influenza Epidemic in Puerto Rico	1076
Lackman, Casey, Philip, Owen & Reinhard	Comparison of Influenza in Northwestern U.S.A. caused by A-Prime and Asian Influenza Viruses	1077
Oseasohn, Adelson & Kaji	Clinicopathological Study of 33 Fatal Cases of Asian Influenza	1077
Martin; Kunin; Gottlieb; Barnes; Liu; Finland	Asian Influenza A in Boston, 1957–58. I. 32 Influenza-Associated Fatal Cases. II. Severe Staphylococcal Pneumonia Complicating Influenza	1077
Cocuzza, Panella & Mangiameli	Transmission of Influenza Antibodies through Placenta	1078
Rendtorff, Walker, Rowland & Packer	Intradermal Immunization against Asian Influenza in Children	1078
Rapmund, Johnson, Bankhead, Herman & Dandridge	Diagnosis of Asian Influenza Virus Infection after Recent Immunization	1078
Beam, Grayston & Watten	Second Asian Influenza Epidemics occurring in Vaccinated Men Aboard U.S. Navy Vessels	1078
Vargosko, Chanock, Huebner, Luckey, Kim, Cumming & Parrott	Association of Type 2 Haemadsorption Virus and Asian Influenza A Virus with Infectious Group	1079
Macdougall & Beecher	Pneumonia in African Children	1079
Whittaker	Radiological Diagnosis of Acute Pneumonia in Children	1079
Ede, Davis & Holmes	Staphylococcic Pneumonia	1079
Leng-Levy, David-Chausse, Gibaud & Battin	Treatment of Acute Pneumonia with New Long-acting Sulphonamide, Ro 4-0517	1080
Stuart-Harris	Chemotherapy of Non-Tuberculous Pulmonary Infections	1080
Cherniack, Vosti, Dowling, Lepper & Jackson	Long-Term Treatment of Bronchiectasis and Chronic Bronchitis	1080
Schmid	Histological and Differential Diagnosis of Virus Hepatitis and its Atypical Forms by Needle Biopsy	1081
Kunin	Serum Hepatitis from Whole Blood	1081
Klijn	Serological Diagnosis of Infectious Mononucleosis	1081
Gardner	Acute Pericarditis as Initial Manifestation of Infectious Mononucleosis	1081
Watson	Acute Purulent Meningitis	1082
Platou, Rinker & Derrick	Acute Subdural Effusions and Late Sequelae of Meningitis	1082
Thrupp, Forester & Brody	Poliomyelitis in U.S., 1957	1082

Oxford *University Press*

OXFORD MEDICAL PUBLICATIONS

Medical Surveys and Clinical Trials

Edited by **L. J. WITTS, C.B.E.**

Nuffield Professor of Clinical Medicine in the University of Oxford

During the present century a new technique of clinical research has been developed which consists of the study of disease in groups instead of—as in past centuries—in individual patients. This book, which is the first to be written on this increasingly important branch of research, will prove invaluable not only to those holding full-time research appointments but also to all engaged in any branch of clinical medicine, whether as consultants or general practitioners.

The book is divided into two parts: Part I Methods and Part II Applications. The first part commences with a chapter on the general principles of group research followed by chapters on diagnosis in group research; prevalence surveys; prospective and retrospective studies; follow-up studies; prophylactic and therapeutic trials; the use of volunteers, controls, placebos, and questionaries in clinical trials; and operational research in medicine.

The second part shows how these methods may be applied in many different branches of medical science each chapter being illustrated by a number of relevant examples which show what has already been achieved by these methods of research, such as the elucidation of retrolental fibroplasia—soon followed by its virtual disappearance; the role of maternal rubella in the causation of foetal abnormalities; or the importance of tobacco smoking in the aetiology of cancer of the lung. No attempt has been made to include all branches of clinical medicine but those selected for detailed discussion provide ample information for workers in any other branch of medicine. Part II contains chapters on genetics, human nutrition, child development and health, chest diseases, cardiovascular diseases, diseases of joints, mental illness, cancer and tropical diseases.

Every author has written from wide personal experience and all have made a number of distinguished contributions to medical research, many of which are used as the actual working examples that appear in the different chapters of this book.

Contributors

R. M. Acheson
A. C. Allison
N. T. J. Bailey
B. Bronte-Stewart
G. M. Carstairs
R. Doll
C. M. Fletcher
E. M. Glaser
J. Knowelden
J. Lawrence
P. D. Oldham
Sir George Pickering
H. M. Sinclair
V. H. Springett
Alice M. Stewart
S. C. Truelove
L. J. Witts
A. W. Woodruff

336 pages   17 illustrations   29 November 35s. net

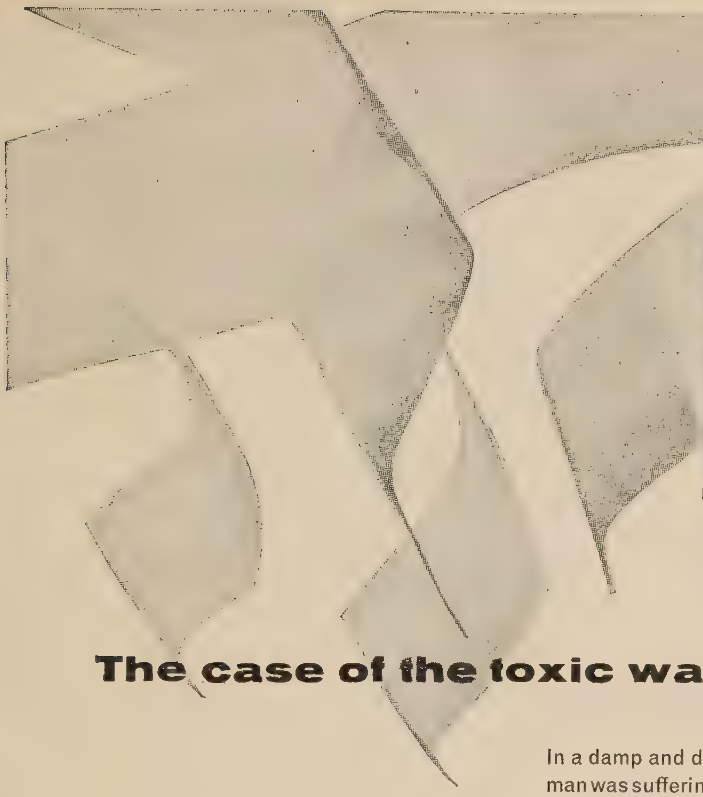
COMMUNICABLE DISEASES—*cont.*

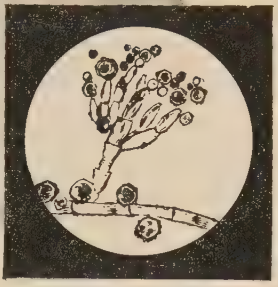
Infective Diseases—*cont.*

		PAGE
Kubryk	Paralytic Poliomyelitis Trends, 1957	1083
Berni	Poliomyelitis in Rome 1958	1083
Wisner, Marcovici & Buimovici	Poliomyelitis Epidemic in Creche	1083
Semashko	Spread of Poliomyelitis in Latvia	1083
Paktoris & Vorontsova	Poliomyelitis in Lithuania, 1955: Clinical and Epidemiological Characteristics—1	1084
Levy & Falk	Poliomyelitis under 1 year of Age. Clinical and Laboratory Findings	1084
Depoux & Orio	Small Epidemic of Poliomyelitis in Port-Gentil, Gabon	1084
Thomson & Fletcher	Immediate Sensitivity Reaction to Poliomyelitis Vaccine	1084
Tobin, Brunner & Syverton	Propagation *in vitro* of Polioviruses. IX. Application of HeLa Cell Cultures to study of Distribution of Poliovirus Antibody	1084
Melén, Wesslén & Olin	Results of Experimental Vaccination against Poliomyelitis	1085
Wolf, Shaughnessy, Janota, Chapman, Church & Moore	Duration of Seroimmunity after Injection with Ultraviolet-Irradiated Poliomyelitis Vaccine. Booster Inoculations	1085
Horstmann, Niederman & Paul	Attenuated Type 1 Poliovirus Vaccine. Capacity to Infect and to Spread from "Vaccinees" within Institutional Population	1085
Plotkin, Jervis, Norton, Stokes & Koprowski	Persistence of Antibodies after Vaccination with Living Attenuated Poliovirus	1086
Barr, Bauer, Kleinman, Johnson, Martins da Silva, Kimball & Cooney	Use of orally administered Live Attenuated Polioviruses as Vaccine in Community Setting	1086
Abad-Gómez, Piedrahita, Solórzano & Martins da Silva	Communitywide Vaccination Programme with Attenuated Poliovirus in Andes, Colombia	1087
Plotkin, Koprowski & Stokes	Clinical Trials in Infants of Orally Administered Attenuated Poliomyelitis Viruses	1087
Verlinde, Wilterdink & Kret	Active Immunization against Poliomyelitis with Live Attenuated Viruses	1088
Ryder, Doane, Zbitnew & Rhodes	Outbreak of Bornholm Disease, with Isolation of Coxsackie B5 Virus: Toronto, 1958	1088
Slonim & Hloucal	Production and Persistence of Complement-Fixing and Neutralizing Antibodies in Tick-Borne Encephalitis	1089
Smithburn, Kokernot, Heyman, Weinbren & Zentkowsky	Neutralizing Antibodies for Certain Viruses in Sera of Human Beings residing in Northern Natal	1089
Beadle	Status of Mosquito-Borne Encephalitis in United States	1089
Brody & Murray	Arthropod-Borne Encephalitis in United States, 1957	1089
Giddings, Smith, Beaver & Sooter	St. Louis Encephalitis Outbreak during 1956 in Grand Junction, Colo.	1090
Henderson & Shelokov	Epidemic Neuromyasthenia—Clinical Syndrome	1090
Flax & Leibovici	Mixed Water-borne Epidemic with *Salm. typhi*, *Salm. paratyphi A*, and Dysentery Bacilli	1090
Manchanda, Singh & Chitkara	Enteric Fever in Children	1091
Macciotta & Chiappe	Liver Function in Children suffering from Typhoid Fever	1091
Henderson, Garlock & Olson	Treatment of Acute Typhoid with Synnematin	1091
Schubert, Edwards & Ramsey	Detection of Typhoid Carriers by Agglutination Tests	1091
Jersild, Neukirch, Raun, Riwerts-Eriksen & Tulinius	Typhoid Carriers treated with High Dosages of Penicillin	1092
Bergsma	Veterinary Problems concerning Epidemiology of Salmonellosis	1092
Johnson & Landsman	Antibiotic Treatment in Dysentery	1093
Taylor	Acute Bacillary Dysentery in Cyprus	1093
Fališevac, Košutić & Galinovic-Weisglass	Sulphonamides and Streptomycin in Bacillary Dysentery	1094

Tuberculosis

Karns	Tuberculosis in Medical Students at University of Maryland	1094
Gómez & Racine	Tuberculin Allergy in University Students: Changes in relation to Risk of Infection	1095
Bogen	Postmortem Transmission of Tuberculosis	1095
Muntendam	Influence of Social Milieu on Manifestation and Course of Tuberculosis	1095
Dubos	Host in Tuberculosis	1096
Enterline & Kordan	Controlled Evaluation of Mass Surveys for Tuberculosis and Heart Disease	1096
Cochran, Fletcher & Clayson	Experiment in Mass Radiography	1097
Meissner	Influence of Bacillus on Course of Tuberculosis	1097





Scopulariopsis Brevicaulis: a mould which liberates arsine from the pigment Paris Green—grown on Oxoid Sabouraud Agar.

The case of the toxic wallpaper

In a damp and dingy green-papered room, a man was suffering from a progressive malaise and little knew that he was being slowly poisoned. Murder?—No. In fact, arsenical gas was being liberated from the green pigment in the paper by the action of a mould growing on it.

Although this particular instance is not taken from our files, it serves to illustrate the diversity of problems which face the Bacteriologist. It is with such problems—as well as in the everyday routine work—that Oxoid Culture Media prove so dependable and reliable and, of course, so convenient.

FOR PROGRESSIVE LABORATORIES OXOID CULTURE MEDIA

REGD. TRADE MARK

The use of Oxoid Culture Media ensures constant quality and uniformity in your laboratory technique. Absolutely reliable, quick, convenient and economical, Oxoid Culture Media are available in tablet or granular form. Full details from:

OXOID DIVISION OF OXO LTD., Thames House, Queen Street Place, London, E.C.4 (CENtral 9781)

COMMUNICABLE DISEASES—*cont.*

Tuberculosis—*cont.*

		PAGE
Shah, Warawadekar, Deshmukh & Phutane ...	Institutional Survey of Pulmonary Tuberculosis with Special Reference to Smoking Habits ...	1098
Spångberg ...	Clinical Study of Haemagglutination Reaction in Tuberculosis ...	1098
Lorriman & Bentley ...	Incidence of Segmental Lesions in Primary Tuberculosis in Childhood. Effect of Chemotherapy ...	1099
Crofton ...	Chemotherapy of Pulmonary Tuberculosis ...	1099
Organick ...	Toxic Psychosis due to Isoniazid. 3 cases ...	1100
Lauener & Favez ...	Inhibition of Isoniazid Inactivation by means of PAS and Benzoyl-PAS in Man ...	1100
Webb ...	Pulmonary Resection for Drug-Resistant Cavitary Tuberculosis utilizing Ancillary Drugs ...	1100
Young, Misener, Quinlan & Hiltz	Pulmonary Function Changes in Bilateral Resection for Pulmonary Tuberculosis ...	1100
Glass ...	Forcible Detention of Patients with Active Tuberculosis ...	1101
Todorovitch ...	Relapse, Recurrence and Manifestations of "Larval" Encephalitis in Tuberculous Meningitis ...	1101
Groth-Petersen ...	Risk of Tuberculosis as Guiding Factor for Tuberculosis Eradication ...	1102
Spiess ...	Chemoprophylaxis and Preventive Chemotherapy of Tuberculosis ...	1102
Ebina & Saito ...	Protective Value of Non-lyophilized and Lyophilized BCG Vaccine against Tuberculosis ...	1103

Venereal Diseases

Del Vecchio ...	Anti-Venereal Disease Campaign in Italy 1955–56 ...	1104
Ibarra ...	Venereal Disease Control Programme of Manila Health Department ...	1104
Migne, Bénazet & Reboul ...	Quantitative Reactions employing Cardiolipin Antigens ...	1105
Bekker & Onvlee ...	Reiter Protein Complement-Fixation Test in Experimental Syphilis ...	1105
Rajam & Sowmini ...	Oral Tetracycline in Prevention of Prenatal Syphilis ...	1105
Vor dem Esche ...	Experience in Serological Examinations of Blood Donors for Syphilis ...	1105
Brown & Sunkes ...	Results of Premarital Serological Testing in Southern State	1106
Wells, Kierland & Jackman ...	Rectal Chancre. Report of Case ...	1106
Fiumara, Todd, Young & Wilson	Outbreak of Gonorrhea in Massachusetts 1957 ...	1106
Stuart & Crookes ...	Laboratory Policy in Diagnosis of Female Gonorrhoea Culture or Smear ...	1106
Landman & Gelmi ...	Asymptomatic Gonorrhea in Male ...	1106
Thurman ...	Evaluation of Treatment of Acute Gonorrhea in Male with Varying Dosage Schedules of Penicillin V Potassium ...	1107

Other Communicable Diseases

Colangelo ...	Compression Fractures of Thoracic Vertebrae in Patient with Tetanus ...	1107
Eckmann ...	Tetanus Prophylaxis and Treatment ...	1107
Vervoorn ...	Active Tetanus Immunization in Ashanti, Ghana ...	1107
Ch'iu, Hou, Huang, Liu, Sung & Li	Epidemic Haemorrhagic Fever in T'uliho Area, Inner Mongolia. Clinical Study of 104 Cases ...	1108
Barrera ...	Cat Scratch Disease ...	1108

Zoonoses

Ann New York Acad. Sci. ...	Animal Disease and Human Health ...	1109
Vereninova, Smirnova, Kalacheva, Kuznetsova & Karaseva ...	Effectiveness of Combined Vaccination with Live Vaccines against Plague, Tularaemia, Brucellosis and Anthrax. I. Compatibility of Live Vaccines in Experiment on Guinea-pigs ...	1109
Bensissou & Jouffreau ...	Case of Occupational Anthrax: Notes on Prevention ...	1109
Gargani & Aleandri ...	Complement-Fixation Test in diagnosis of Brucellosis ...	1109
Siennicki; Przyłecki; Basz; Cygankiewicz; Radziszewska; Pióro	Brucellosis in Inhabitants of Province of Wroclaw 1955–57. I. In Workers in Veterinary and Zootechnical Service. II. In Workers on State Farms. III. Among Employees in Dairies, Slaughterhouses and Meat-Product Factories ...	1110
Siennicki ...	Brucellosis in Inhabitants of Province of Wroclaw 1950–57	1111
Schirger, Dearing & Waugh ...	Intermittent Fever over 17-Year Period in Patient with Hypersplenism due to Brucellosis ...	1111

COMMUNICABLE DISEASES—*cont.*

Zoonoses—*cont.*

		PAGE
Molinelli, Vera Barros & Ithurralde ...	Tetracycline-Oleandomycin in Human Brucellosis Therapy	1111
Fyvie, Ross & Labzoffsky ...	Tularaemia among Muskrats on Walpole Island, Lake St. Clair, Ontario ...	1111
Dold, Jordan, Merker, Schmid & Sjösten ...	Epidemic of Leptospiral Disease with special Epidemiological Features ...	1111
Mateew ...	Leptospiroses of Bulgaria ...	1112
Vysotskii, Malykh & Kuznetsov	Fur-Bearing Animals as Additional Reservoirs of Pathogenic Leptospires in the Wild ...	1112
Eskin, Kraminskaia, Berkut, Irlin & Izotov ...	Epidemiological and Clinical Features of Ussurian Leptospirosis ...	1112
Cochavy ...	Epidemiology of Leptospirosis in Man in Israel 1949–57 ...	1113
Wolff, Collier, Bool & Bohlander	Occurrence of Leptospirosis in Surinam ...	1113
Kleinschmidt & Christ ...	Laboratory Infection caused by *L. ballum* ...	1113
Cholvin, Morse & Langham ...	Experimental *L. pomona* infections in Dogs ...	1113
Lang & Morse ...	Serological Cross Reactions among Leptospirae observed with Sera from Animals infected with *L. pomona* ...	1114
Terzin, Hlača & Fornazarić ...	Antibodies against Bedsonia Antigen in Sera of Animals ...	1114
Rindge, Jungherr & Scruggs ...	Serological Evidence of Occupational Psittacosis in Poultry-Plant Workers ...	1115

DISEASES DUE TO FUNGI

Catanei ...	3 Fungi Causing Human Ringworm in Sahara ...	1115
Doby-Dubois, Doby & Deblock ...	Tinea in Cameroons. II. Statistical and Epidemiological Study ...	1115
Baylet, Hubert & Quenum ...	Histoplasmin Index in French West Africa ...	1115
Saslaw & Beman ...	Erythema Nodosum as Manifestation of Histoplasmosis ...	1116
Felson ...	Some Less Familiar Roentgen Manifestations of Intrathoracic Histoplasmosis ...	1116
Segal, Starr & Weed ...	Surgically Excised Pulmonary Granulomas ...	1116
Stein ...	Systemic Moniliasis: 5 Cases ...	1116
Kozinn, Wiener, Taschdjian & Burchall ...	Is Isolation of Infants with Thrush Necessary? ...	1117
Larsen, Diamond & Collins ...	*Nocardia asteroides* Infection. 7 Cases ...	1117
Borland ...	Mucormycosis of Central Nervous System ...	1118

RHEUMATIC DISEASES

McEwen ...	Current Status of Therapy in Rheumatic Fever ...	1118
Goldberger ...	Aetiology and Pathogenesis of Rheumatic Fever ...	1119

HEART DISEASE

World Health Organization ...	Hypertension and Coronary Heart Disease: Classification and Criteria for Epidemiological Studies ...	1119

CANCER

Boucot, Horie & Sokoloff ...	Lung Cancer detected by Survey Methods ...	1120
Joules ...	Cigarette Smoking and Lung Disease ...	1120
Burgan ...	Manufacturers' Contribution to Experimental Research on Smoking and Lung Cancer ...	1121
Bastai & Pescetti ...	Aetiological Factors of Bronchogenic Carcinoma ...	1121
Agnese ...	Relationship between (i) Tobacco Smoking and Mortality Rate for Lung Cancer in Italy, (ii) Lung Cancer and Suspected Favouring Factors in Italy ...	1121–1122
Lawther & Waller ...	Atmospheric Pollution and Lung Cancer ...	1122
Borneff & Knerr ...	Carcinogenic Substances in Water and Soil. I. Theoretical Basis, Nature of Substances and their Recognition ...	1123

DENTAL HYGIENE

Australian Dental J. ...	Biology of Children of Hopewood House, Bowrai, N.S.W. II. 1952–1956 inclusive ...	1123

OCCUPATIONAL HYGIENE

		PAGE
Bishop	3-Year Report of Morbidity in Some Ontario Industries ...	1123
Parma	Occupational Disorders of Dentists	1124
Mortensen, Stevenson & Whitney	Mortality due to Coronary Disease analysed by Broad Occupational Groups	1124
Fernándes Rozas	Technical Control of Noise in Relation to Occupational Deafness. Medico-Legal Study	1124
Kathren, Price & Rogers	Air-Borne Castor-Bean Pomace Allergy	1125
Pestalozzi	Febrile Disease in Carpenters in Carpentry Works through Inhalation of Moist Air Contaminated by Moulds ...	1125
Uyterlinde	"Farmer's Lung," an Acute Pulmonary Disease due to Threshing Mouldy Grain	1125
Freytag, Nicewicz & Pleszczynski	Dust Concentration during Threshing Work and Investigation of Microflora of Dust	1125
Liddell & May	Statistical Study of Coal-Mining Accidents	1126
Ministry of Labour and National Service	Pottery Industry in Stoke-on-Trent. Report by H.M. Factory Inspectorate	1126
McIntyre Research Foundation ...	9th Conference on Silicosis and other Industrial Pulmonary Diseases held in Toronto, January 1958	1127
Ministry of Power	Report of H.M. Chief Inspector of Mines and Quarries under Mines and Quarries Act 1954 for (i) 1957, (ii) 1958	1128
Fay & Rae	Pneumoconiosis Field Research of National Coal Board ...	1129
Faulds, King & Nagelschmidt ...	Dust Content of Lungs of Coal Workers from Cumberland ...	1129
Hartmann	Silicosis in Swiss Ceramic Industry	1130
Norviit	Silicosis at Laisvall	1131
Lehir, Guerrero & Van Rycke ...	Silicosis in Morocco	1131
Ayre	Silicosis in the Foundry—Medical Control	1132
Vigliani & Pernis	Immunological Approach to Silicosis	1132
Pernis, Gambini & Finulli ...	Immuno-conglutinin in Silicotic Patients	1132
Marchand-Alphant & Grailles ...	Histological Appearances of Pneumoconiosis among Coal-miners of Nord—Pas-de-Calais Coalfields	1132
Otto & Maron	Histology of Iron Deposits in Silicotic Lungs from Pottery Industry	1133
Guyotjeannin & Guyotjeannin ...	Increase in Coagulability of Blood in Silicosis	1133
Fournier & Guyotjeannin	Ducci Test in Silicosis	1133
Decroix & Matossy	Silicosis Occurring after 4 months' Exposure	1133
Delesvaux	Early Diagnosis of Cardiac Complications in Silicosis ...	1134
Jahn	Silicosis and Avian Tuberculosis	1134
Vigliani & Sartorelli	Treatment of Confluent Forms of Silicosis	1134
Nadudvary, Rosenfeld, Bernstein, Balkanyi, Radiovoiu, Weisz & Weinberger	Prevention of Silicosis by Use of New Wetting Material based on Bentonite for Wet Mechanical Drilling in Mining Industry	1134
Scherrer	New Method for Stabilization of Oxygen in Fleisch Metabograph	1135
Gobbato, Zagarese & Alfieri ...	Changes of Isotonic Systole as Function of Cardiac Output during and after Effort	1135
Gobbato, Sequi, Zagarese & Berra	Haemodynamic Changes induced by Hypoxia in Pneumoconiotic Patients. Levy's Test	1135
Sartorelli, Magistretti, Peirone, Grieco & Grimaldi	Reliability of Determination of Arterial Blood Oxygen Saturation *in vivo*, at rest and during work, with the Waters X-80 A Oximeter	1135
Paterson & Wheatley	Solubility and Heat of Wetting of Silica Powders	1136
Drössler, Szongott, Panzer & Kitzler	Determination of "Critical Dust Concentrations" in Austria	1136
Tomič	Public Health and Hygienic Factors in Region of Asbestos Mine and Factory	1137
Clausen	Talcosis in Rubber Factory	1137
Moschinski, Jurisch & Reinl ...	Lung Changes in Hard-Metal Workers	1137
Husten	Hard-Metal Fibrosis of Lung	1137
Horiuchi & Horiguchi	Industrial Lead Poisoning. I. Absorption, Transportation, Deposition and Excretion of Lead. Experimental Study with Radioactive Lead	1137
Marmet	Toxicological Investigations in Lead Workers	1138
Sano	Nature of Basophilic Stippled Cells in Lead Poisoning. I. Cytological Investigation. II. Mechanism of Granule-Formation	1138
David	Bone Marrow in Industrial Lead Poisoning	1139
Nakase	Experimental Production of Liver Cirrhosis by Prolonged Administration of Beryllium	1139
Lewis	Biological Effects of Vanadium. Signs and Symptoms of Occupational Exposure	1139

OCCUPATIONAL HYGIENE—*cont.*

PAGE

Birnmeyer ... Inhalation of Noxious Substances and Misplaced Localization of Squamous Epithelium in Larynx ... 1139
Shirakawa ... Toxicity of Benzine Hexachloride. IV. Effects of Lindane Vapor to Insects and Mammals ... 1140
Gabor ... Enzyme Changes in Benzolism ... 1140
Bartoníček & Souček ... Metabolism of Trichloroethylene in Rabbits ... 1140
Sziza & Magos ... Toxicological Investigation of Some Aromatic Nitrocompounds used in Industry in Hungary ... 1141
Walworth & Virchow ... Industrial Hygiene Experiences with Toluene ... 1141
Croton ... Carbon Monoxide Poisoning—Current Controversy ... 1142
Wolfsie & Shaffer ... Hydrogen Cyanide. Hazards, Toxicology, Prevention and Management of Poisoning ... 1142
Balgairies & Claeys ... Atmospheric Investigation for Toxic Substances in Synthetic Resin Production Workrooms ... 1142
Healy ... Ascending Paralysis following Malathion Intoxication ... 1143
Davies & Green ... Chemotherapy of Poisoning by Organophosphate Anticholinesterases ... 1143

ATMOSPHERIC POLLUTION

Stocks ... Cancer and Bronchitis Mortality in relation to Atmospheric Deposit and Smoke ... 1144
Smith, MacEwen & Barrow ... Occurrence of Phenols in Air and Combustion Products ... 1144
Grandjean ... Effect of Cement Dust in Air on Health of Population of Neighbourhood ... 1144

PHYSIOLOGY AS APPLIED TO HYGIENE

Linderholm ... Diffusing Capacity of Lungs as Limiting Factor for Physical Working Capacity ... 1145

SANITATION

Water and Swimming Baths

Morelis & Colobert ... Selective Medium for Rapid Identification and Counting of *Str. Faecalis* ... 1145
Sureau ... Isolation and Enumeration of Faecal Streptococci in Waters by means of Filtering Membranes ... 1145
Henderson ... Use of Membrane Filters for Estimation of Coliform Densities in Sea Water ... 1146
Heinrich & Pulverer ... Methods of Isolation of Salmonella Organisms from River Water, Sewage and Mud ... 1146
Darrasse, Le Minor & Lecomte ... Isolation of Salmonellae from the Dakar Water Supply: Unusual Source of Contamination ... 1146
Delius ... Removal of Dangerous Concentrations of Nitrate from Water 1146
Public Health Rep. ... Fluoridation. I. Statement by A. S. Flemming. II. Fluoridation in U.S. III. Proposed Alternatives ... 1146

Sewage, Trade Waste and Refuse Disposal

Ministry of Housing and Local Government ... 2nd Progress Rep. of Standing Technical Committee on Synthetic Detergents ... 1147
Kelly & Sanderson ... Effect of Sewage Treatment on Viruses ... 1147

FOOD AND NUTRITION

Foodstuffs

Trimarchi ... Bacteriological Control of Food Utensils in Public Service. I. Determination of the Bacterial Content ... 1148
Ministry of Health ... Ice-Cream Regulations 1959 ... 1148
Névot, Lafont & Lafont ... Destruction of Bacteria by Heat. Efficacy of Pasteurization of Milk ... 1148

MISCELLANEOUS DISEASES

Liebeschuetz ... Respiratory Signs and Symptoms in Young Soldiers and Their Relationship to Smoking ... 1149
Saslaw & Streitfeld ... Correlation of Smoking Habits with Haemolytic Streptococci and Antistreptolysin O Responses ... 1149

BACTERIOLOGY AND IMMUNITY

General

		PAGE
Sneath & Cowan	Electro-Taxonomic Survey of Bacteria	1150
Stocker	Bacterial Genetics and Infectious Disease	1150
Stuart	Transport Medium for Specimens in Public Health Bacteriology	1150
Amsterdam & Schneierson	Mucin-Like Enhancement of Microbial Virulence for Mice by Bile Salts and Certain Surfactants	1151
Benacerraf, Thorbecke & Jacoby	Effect of Zymosan on Endotoxin Toxicity in Mice	1151
Raynaud, Relyveld, Turpin & Mangalo	Preparation of Highly Purified Diphtheria, Tetanus and Staphylococcal Toxoids adsorbed on Calcium Phosphate	1151

Bacteriostatic and Bactericidal Substances; Disinfection

Ann. Inst Pasteur	Annual Colloquium of French Society of Microbiology. Changes in Bacteria and in Characters of Infections under Influence of Antibiotics	1152
Murat, Stinebring, Schaffner & Lechevalier	Screening for Antibiotics active against Intracellular Bacteria	1152
Naumann	Determining Bacterial Resistance in connexion with local Antibiotic Treatment	1153
Lawrence	Comparative Toxicity of Antibiotics to Skin	1153
Boyce & Vaidya	Penicillin Salts of Steroidal Amines. I. Chemistry. II. Comparative Study of Physical and Chemical Properties	1153
Sedlaczek, Czerniawski & Zabłocki	Specific Protective Effect of Lipopolysaccharide-Protein Symplexes Isolated from *E. coli* on Sensitivity of Gram-Positive Bacteria to Penicillin	1153
Rose & Martin	Toxin-Inactivating Substance excreted by *Penicillium cyaneo-fulvum*	1154
Seigneurin, Magnin & Fils	Erythrocyte Resistance to Haemolysis after Addition of Antibiotics	1154
Loder & Walker	Neuromuscular-Blocking Action of Streptomycin	1154
Prescott; Kauffmann; James; Stone	Means of increasing Tolerated Dose of Streptomycin in Mice. Certain Vitamins	1154–1155
Larkin	Side-Effects of Tetracycline alone and with Nystatin	1155
Jeney & Zsolnai	Chemotherapy of Urinary and Wound Infections by Gram-negative Bacteria	1155
Dutton & Elmes	Vancomycin: Treatment of Patients with Severe Staphylococcal Infections	1155
Berger	Action of Vancomycin on Oral Spirochaetes and Fusobacteria	1156
Cronk & Naumann	Absorption and Excretion of Kanamycin in Human Beings	1156
Griffith & Ostrander	Comparison of *in vitro* Effectiveness of Kanamycin and 9 other Antibiotics against Staphylococci	1156
Lustberg & Hamburger	8th Nerve Deafness after Administration of Kanamycin	1156
Antibiotics & Chemotherapy	Psicofuranine. I. Discovery, Isolation and Properties. II. Experimental Animal Infections. III. Production and Biological Studies. IV. Microbiological Assay. V. Paper Chromatography and Ultraviolet Absorption Assay	1156
Orlandella & Ferlazzo	*In vitro* Antibacterial Activity of Colimycin	1157
Lam & Sevag	Inhibitory and Competitive Effects of Sulphathiazole on Transaminases and Permeability of Sensitive and Resistant *Staph. aureus*	1157
Fazzi & Della Stua	Antibacterial Action of 3-Sulphanylamide-6-Methoxypyridazine and the 3-Sulphanylamide-6-Chlorpyridacine	1157
Cook & Wills	Use of Stores Suspensions of *E. coli* I in the Evaluation of Bactericidal Action	1158
Barwell & Freeman	Sterilization by Ethylene Oxide	1158
Heman-Ackah	Evaluation of Antiseptic Activities of Solutions of Cetrimide, Iodine, Mercuric Iodide and Chloroxylenol at Different Times after Application to Skins of Africans	1158
Whitt	Surface Film Method of evaluating Quaternary Ammonium Compounds	1159
Jeney & Zsolnai	Bacteriostatic Action of Azo Compounds	1159
Szita & Barsy	Sporocidal Activity of some Disinfectants	1159
Klarmann	Hospital Infection and Environmental Disinfection	1159
Sandiford, Blowers & Mitchell	Sluicing of Hospital Linen in Automatic Washing Machines	1160
Boycott	Use of Washing Machine for Scouring and Disinfecting Babies' Napkins	1160

Individual Bacteria

Mattman & Starnes	Sodium Azide in Propagation of L. Variants. Variants and Use of Sodium Azide in their Propagation	1160

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Colobert & Louisot	Filtrable Forms of *Salm. typhi* obtained by means of Lysozyme	1161
Vassiliadis	Serological Diagnosis of *Salm. typhi* isolated by Bloodculture and Observations on Methods of Culture	1161
Servant, Rey & Bonét-Maury	Preservation of Viability of *Salmonella* Strain by Freeze-Drying for production of Radio-Inactivated Living Vaccine. I. Initial Freezing Phase	1161
Spaun	Typhoid Vaccine. Vi antigen and Vi Antibody	1161
Buonomini & Gabrielli	Control of Typhoid Vaccines. II. Comparative Tests of Various Methods Suggested for Evaluating Efficacy of Vaccine	1162
Stokes & Bayne	Growth-Factor-Dependent Strains of Salmonellae	1163
Joachin, Mayes & Olarte	Sensitivity of *Salmonella* Species to Synnematin B, Chloramphenicol, and Tetracyclines	1163
Böhme, Schneider & Lee	Some Physiopathological Parameters of Natural Resistance to Infection in Murine Salmonellosis	1163
Stocker & Campbell	Effect of Non-Lethal Deflagellation on Bacterial Motility. Flagellar Regeneration	1163
Raettig	Provocation of Infection by Vaccination. I. Specific Provocation during Experimental Epidemic of *S. typhimurium*	1164
Van Oye, Lucasse & Van Goethem	Series of Infections due to Biochemically Atypical Strain of *Salm. enteritidis*	1164
Okonogi, Fukai, Mitsuhashi, Nagai & Kawakami	Experimental Typhoid. III. Histopathological Study of Mice Liver infected with Virulent or attenuated *S. enteritidis* Strain	1164
Kuwahara, Yasushi, Owa & Shinoda	Nutrition of *Salm. pullorum* and *Salm. gallinarum*. I. Growth Factors and Amino Acid Requirements	1165
Gáspár	Correlations between Antigenic Structure and Phase Sensitivity of Types of Group *Sh. flexneri*	1165
Rauss, Kétyi, Réthy & Joó	Significance of Inoculation Interval in Vaccination with Polyvalent Dysentery and Combined Typhoid-Dysentery-Tetanus Vaccines	1165
Kétyi	Intracutaneous Administration of Dysentery Vaccine	1165
Spicer	Survival of *Sh. sonnei* on Cotton Threads	1165
Coetzee	Mutation Rate of Phase I *Sh. sonnei* to Phase II	1166
Fleischhauer	Demonstration of *E. coli* Toxin with Agar Gel Diffusion Test	1166
Kratochvíl, Tarabcák & Bauer	Epidemiological Significance of *E. alcalescens*	1167
Dubay	Biochemical Properties of *Klebsiella* Type 4	1167
Fulton, Forney & Leifson	Identification of Serratia occurring in Man and Animals	1167
Hugh	Oxytoca Group Organisms isolated from the Oropharyngeal Region	1167
Soucek & Novotný	Proposing Method for Routine Examination of *C. diphtheriae*	1167
Raynaud, Alouf & Mangalo	Diphtheria Bacillus growth and Toxinogenesis in Agitated Cultures on Synthetic Media	1168
Raynaud, Relyveld, Girard & Corvazier	Preparation of Anti-Diphtheria Sera of High Flocculating Titre and Low Neutralizing Capacity, by Immunization of Schick-Positive Horses with a Highly Purified Toxoid	1168
Jensen	Laboratory Techniques applicable in Tropics	1168
Runyon, Selin & Harris	Distinguishing Mycobacteria by Niacin Test	1168
Copley, Maupin & Baléa	Agglutinant and Adhesive Behaviour of Isolated Human and Rabbit Platelets in Contact with Various Strains of Mycobacteria	1169
Rheins & Buehler	Antigenicity of Antimycobacterial Sera	1169
Mankiewicz, Stackiewicz & Liivak	Polysaccharide Isolated from *C. albicans* as Growth-Promoting Factor for *Myco. tuberculosis*	1170
Costello & Hedgecock	Effect of Metavanadate Ion on the Growth *in vitro* of *Myco. tuberculosis*	1170
Fong, Chin, Akiyama & Elberg	Tubercle Bacillus-Monocyte Relationship. III. Conditions affecting Action of Serum and Cells. Modification of Bacilli in an Immune System	1170
Hennes, Muchmore, McClure & Hammarsten	*In vitro* Inhibition of Growth of *Myco. tuberculosis* by certain 11-Oxygenated Steroids	1171
Arakawa, Oota & Sato	Approximate Estimation of Tuberculin-Polysaccharide in Serum. (Tuberculosis in Infancy and Childhood. 4th Report)	1171

BACTERIOLOGY AND IMMUNITY—*cont.*

Individual Bacteria—*cont.*

		PAGE
Kurylowicz; Kuzniecow; Pasquier; Sitek	(i) Comparative Study of Lyophilized BCG Vaccines prepared from BCG Strains of Different Origin. (ii) Attempts to Differentiate BCG Strains of Different Origin and Lyophilized Vaccines prepared from these Strains by means of Radioactive Carbon, ^{14}C	1171
Kötsche & Kunz	Attempts to Increase Virulence of BCG towards Production of Active Tuberculosis in Guineapigs infected with Viruses	1172
Desbordes	Report on Tuberculin. Project for International Control of Tuberculin	1172
Buehler & Rheins	Serological Relationship of Old Tuberculin-Sensitized Sheep Erythrocytes and Trypsinized Human Erythrocytes	1172
Wasserman & Packalén	*In vitro* Effect of Specific and non-specific Bacterial Products on Migration of Leukocytes from Tuberculin-Sensitized Guineapigs	1173
Robson & Sullivan	Effect of Treatment with Large Dose of Isoniazid on Established Tuberculous Infection in Mice	1173
Kubala; Urbancík	Isoniazid Resistant Strains of *Myco. tuberculosis.* I. Behaviour *in vitro* and Resistance Determination. II. Pathogenesis and Chemotherapy of Experimental Tuberculosis caused by INH Resistant Strains	1173
Dunbar, McAlister & Jefferies	Catalase and Peroxidase Activities of Isoniazid-Susceptible and -Resistant Strains of *Myco. tuberculosis.* Relationship between Results of Test for Enzymes and those of indirect Drug-Susceptibility Test	1174
Jeney & Zsolnai	Search for New Tuberculostatics. N-Aryl Derivatives of O-Dicarbonic Acid Imides	1174
Ross, Monkiewicz & Bowman	Bacteriophage Typing of *Staph. aureus* in Plastic Trays	1174
Rountree	Changes in Phage-Typing Patterns of Staphylococci after Lysogenization	1174
Asheshov & Rippon	Changes in Typing Pattern of Phage-Type 80 Staphylococci	1175
Griffith & Ostrander	Capillary Tube Method for Determination of Coagulase Reaction	1175
Thomas & Penikett	Grading of Coagulase-Positive Staphylococci in Control of Hospital Cross-Infection	1175
Richou, Quinchon & Pantaléon	Natural Anti-Staphylococcal Agglutinins in Sera of Man and Animals	1175
Mann	Comparison of *in vitro* Susceptibility of Strains of *Micrococcus pyogenes* var. *aureus* to Various Antibiotics	1176
Sippe	*S. aureus* in Rural Area of New South Wales	1176
Crowley	Association of Starch-Accumulating Strains of Group A Streptococci with Acute Nephritis and Acute Rheumatic Fever	1176
Slade & Kimura	Studies on *Strep. pyogenes.* Effect of Whole Cells, M and C Antigens, and other Components of the Cell on Adrenalectomized Rats	1176
Matheson & Reed	Experimental Nephritis due to Type Specific Streptococci. Studies on Type 12 Nephritogenic Substance	1176
Maekawa & Hayashi	Hemolysin of Hemolytic Streptococci. The Influence of Potassium Ions and Ribonucleic Acid on the Formation of Streptolycin-S by Resting Streptococcal Cells	1177
Smith, Mills, Bernheimer & Austrian	Study of some Enzymes in Extracts of a Non-Capsulated Strain of *Pneumococcus* concerned with Uridine Pyrophosphoglycosyl Metabolism	1177
Jacotot & Vallée	Criterion of Pathogenicity of *Brucella*	1177
Signorini & Guerra	Experimental Investigations on relations between Brucellar and Tuberculous Infection	1178
Taketa, Ito & Ono	Experimental Studies on Passive Transfer of *Yato-byo* (Tularemia of Japan) Hypersensitivity	1178
Brown	Growth Idiosyncrasies of some *Bordetella pertussis* Strains and their Intracerebral Virulence in Mice	1178
Yamamoto, Gomibuchi, Zen-Yoji, Kikuchi & Tanaka	Similarity between the Capsular Antigen and the Skin Test Antigen in *H. pertussis*	1178
De Caro & Samarani	Histamine Sensitizing Factor in Pertussis Vaccine	1179
Wiener, Tinker & Bradford	Experimental Meningoencephalomyelitis produced by *H. pertussis*	1179
Albrecht & Husmann	Chemotherapy of Experimental Infection with *H. pertussis*	1179
Power & Pelczar	Growth Enhancement of Reiter Treponeme by Fatty Acids	1179

Individual Bacteria—*cont.*

PAGE
De Bruijn ... Investigations into Antigenic Structure of Reiter Strain of *Treponema pallidum*. Complex Nature of the Protein Fraction ... 1180
Kirschner & Graham ... Growth, Purification and Maintenance of Leptospira on Solid Media ... 1180
Faine ... Iron as Growth Requirement for Pathogenic Leptospira ... 1180
Fuchs ... Use of Bovine Vitreous and Rain Water as Basic Substrate for the Cultivation of Leptospira ... 1181
Goldberg & Armstrong ... Oxidase Reaction with Leptospiral Colonies and its Adaptation to Antibiotic Sensitivity Testing ... 1181
Varfolomeyeva ... History of the Discovery, Characteristics and Nomenclature of Cause of Leptospirosis, *L. monjakow* ... 1181
Alexander, Evans & Keen ... *Leptospira butembo*; a Distinct Leptospiral Serotype ... 1181
Caselitz ... General Considerations on *Vibrio jamaicensis* ... 1181
Kujumgiev ... Simple Method for Rapid Differentiation of *Listeria monocytogenes* and *Erysipelothrix rhusiopathiae* ... 1182
King ... Group of Previously Unclassified Bacteria associated with Meningitis in Infants ... 1182

Fungi

Morenz ... A Desoxycholate Medium for Isolation of Pathogenic Fungi 1182
Blank, Sagami, Boyd & Roth ... The Pathogenesis of Superficial Fungous Infections in Cultured Human Skin ... 1182
Karasaki ... Studies on Blood Concentration of Trichomycin. The Therapeutic Blood Concentration for Experimental Candidiasis in the Rabbit ... 1183
Gordon ... Fluorescent Staining of *Histoplasma capsulatum* ... 1183
Mariat & Gardini-Tuesta ... Experimental Pathogenicity of Strain of *H. capsulatum* isolated from African Monkeys ... 1183
Levaditi, Drouhet, Segretain & Mariat ... Histiocyte Reaction in "Small Form" Histoplasmosis and Giant-Cell Reaction in "Large-Form" Histoplasmosis ... 1184
Hill & Marcus ... Resistance induced against *H. capsulatum* ... 1184

Bacteriophages

Prévot & Thouvenot ... Further Studies on Phage 1452 Active on Anaerobic Corynebacteria ... 1185
Fredericq ... Bacteriophage Transduction of Colicinogenic Properties in *Salm. typhimurium* ... 1185
Kohn & Hertman ... New Type of Lysis from Without ... 1185
Loveless & Stock ... The Influence of Radiomimetic Substances on Deoxyribonucleic Acid Synthesis and Function studied in *Escherichia coli* Phage Systems. The Nature of the Inactivation of T2 Phage *in vitro* by certain Alkylating Agents ... 1186
Heicken & Spicher ... Kinetics of the Inactivation and Reactivation of Phages. The Chemical Mechanism of the Formaldehyde Inactivation of Phages ... 1186
Kulangara & Sellers ... Passage of Bacteriophages from Mother to Foetus in the Rat 1186

Viruses

Gale, Pomeroy & Sanger ... Characterization in Mice of a Turkey Ornithosis Virus of Low Virulence ... 1187
Sarateanu, Draganescu, Portocala & Ionescu ... Isolation and Identification of the Pathogenic Agent (Neorickettsial Pneumonitis) ... 1187
Sarkar, Neogy & Lahiri ... Behaviour of Variola and Vaccinia Viruses in Mice ... 1187
Tagaya & Oda ... Growth of Vaccinia Virus in HeLa cells with special reference to the Production of Soluble Antigens ... 1187
Driessen & Greenham ... Haemadsorption in Vaccinia-Infected Tube Tissue Cultures 1187
Brown, Mayyasi & Officer ... The "Toxic" Activity of Vaccinia Virus in Tissue Culture 1188
Wildy, Stoker & Ross ... Release of Herpes Virus from Solitary HeLa Cells ... 1188
Black ... Growth and Stability of Measles Virus ... 1188
Soule, Marinetti & Morgan ... Studies of the Hemolysis of Red Blood Cells by Mumps Virus. Quantitative Study of Changes in Red Blood Cells Lipides and of Virus Lipides ... 1188
Möbest & Tolki ... The Occurrence of Preformed Complement-Fixing Antibodies in Normal Sera of Rabbits ... 1188
Frommhagen & Knight ... Column Purification of Influenza Virus ... 1189
Frommhagen, Knight & Freeman The Ribonucleic Acid, Lipid, and Polysaccharide Constituents of Influenza Virus Preparations ... 1189

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

		PAGE
Borecký	The Effect of "Pneumococcal Factor 103" on Erythrocyte Receptors and Inhibitors	1189
Voláková & Jandásek	A Thermostable Inhibitor of Newly Isolated Influenza Virus Strains in Guineapig Serum	1189
Henneberg & Lange	Quantitative and Temporal Conditions for the Toxic Action of Influenza Viruses	1189
Colobert, Duffrene & Fontanges	New Photometric Method of Estimating the Haemagglutinating Activity of Myxoviruses. Influenza Virus B	1190
Colobert & Duffrene	Basic Properties of Influenza B Virus Haemagglutination	1190
Wesslén, Hermodsson & Philipson	Interference between Influenza and Poliomyelitis Viruses in Tissue Culture	1190
Lange	Influence of Tissue Repair on Effectivity of Adsorbent Medium in Depot Vaccines	1190
Cook, Andrews, Fox, Turner, James & Chanock	Antigenic Relationships among the "Newer" Myxoviruses (Parainfluenza)	1190
Pereira, Pereira & Allison	Use of Gel Diffusion Precipitation Test in Diagnosis of Adenovirus Infections	1191
Rosenbaum, Friedman & Lieberman	Comparison of Two Samplings Methods for the Isolation of Adenoviruses	1191
Nász & Tóth	Cytomorphological Changes in Human Embryonic Kidney Tissue Cultures infected with Adenovirus Type 5 Strains	1191
Uchida, Hoshika, Yamamoto, Koike, Koseki & Furuno	Relationships between Types of Adenovirus indicated by Heterologous Neutralization	1191
Price, Emerson, Ibler, Lachaine & Terrell	Studies of the JH and 2060 Viruses and their Relationship to Mild Upper Respiratory Disease in Human Beings	1191
Philipson & Rosen	Identification of Cytopathogenic Agent called U-Virus recovered from Patients with Non-Diphtheric Croup and from Day-Nursery Children	1192
Finch & Klug	Structure of Poliomyelitis Virus	1192
Ackermann	Cellular Aspects of Cell-Virus Relationship	1192
Holland, McLaren & Syverton	Infection of Naturally Insusceptible Cells with Enterovirus Ribonucleic Acid	1193
Drees & Stubb	Infectivity of Ultracentrifuge Components of Partially Purified Poliomyelitis Virus Preparations	1193
Drees	Preparation and Formalin Inactivation of Partially Purified and Concentrated Poliomyelitis Virus	1193
De Somer, De Maeyer & Prinzie	Method of Assaying Potency of Poliomyelitis Vaccine	1193
Ghendon & Marchenko	Use of White Rats for Testing Immunogenic Properties of Poliomyelitis Antigens	1194
Drees	Testing of Disinfectants against Poliomyelitis. Experiments on Hygienic Disinfection of the Hands	1194
Weigand	Interference between Coxsackie Viruses in Mice	1194
Archetti, Dubes & Wenner	Comparative Study of Prototypic Hill Strain of ECHO Virus, Type 9, and several Coxsackie-like Viruses Related to it Antigenically	1194
Cooney, Boyd & Bauer	ECHO-9 Virus Antibody Titrations in HeLa Cell System	1195
Rev. Serviço Especial de Saúde Pública	Symposium on Arborviruses	1195
Traub & Schwöbel	Detection of Small Amounts of EEE Virus. Sensitivity of the Intracerebral Inoculation of Mice and of Tissue Cultures Respectively	1195
Traub & Schwöbel	Immunity of White Mice to Eastern Equine Encephalomyelitis Virus. Tissue Culture Experiments	1195
Levkovich & Zasukhina	Serological Diagnosis of Tick-Borne Encephalitis by Tissue-Culture Method	1195
Shubladze, Bychkova & Anan'ev	Egg (Embryo) Vaccine for the Prophylaxis of Russian Spring-Summer (Tick) Encephalitis	1196
Franklin, Wecker & Henry	Properties of an Infectious Ribonucleic Acid from Mouse Encephalomyelitis Virus	1196
Wecker	Extraction of Infectious Virus Nucleic Acid with Hot Phenol	1196
Diercks & Hammon	(i) Hamster Kidney Cell Cultures in Laboratory Aspects of Epidemiological Studies on Japanese B Encephalitis Virus. (ii) Rate of Propagation of Virus	1196–1197
Chu	Application of Interference Phenomenon in Tissue Culture for Detection of Japanese B Encephalitis Virus	1197
Lavillaureix, Vermeil & Petrovic	Experimental Characteristics of West Nile Virus	1197
Vermeil, Lavillaureix & Reeb	Infection and Experimental Transmission of West Nile Virus by Tunisian Strain of *Ornithodorus coniceps*	1197

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE
Theis, Billingham, Silvers & Koprowski ... Mechanism of Natural Resistance of Mice to Virus Infection 1198
Nikolitsch ... Spread of Neurotropic Virus, demonstrated in Model Experiments with Rabies and Lymphocytic Choriomeningitis Infection ... 1198

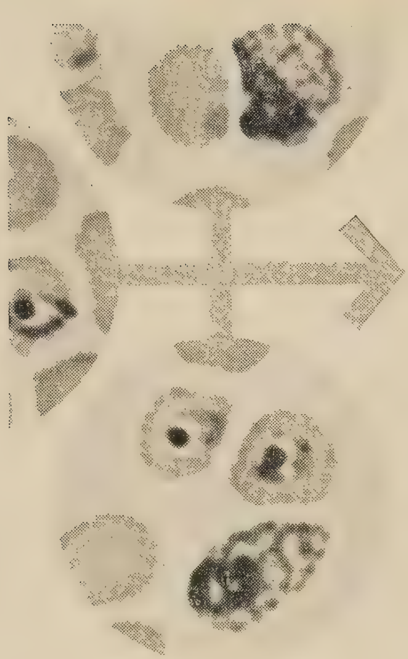
Immunity

Sulitzeanu ... Sites of Antibody Production ... 1198
Leon & Nordén ... Kinetics of Equine Complement ... 1198
Saslaw, Bouroncle, Wall & Doan Antibody Response in Splenectomized Persons ... 1198
Strauch, Stender & Winter ... Effects of Nonspecific Stimulation on Tissue Radiosensitivity during Antibody Production ... 1198
Kind; Johnson; Ward ... Studies on Adjuvant Action of Bacterial Endotoxins on Antibody Formation. (i) Time Limitation of Enhancing Effect and Restoration of Antibody Formation in X-Irradiated Rabbits. (ii) Antibody Formation in Cortisone-Treated Rabbits ... 1199
McVickar & Weinfeld ... Immune Haemolysis at 0°: Role of Amboceptor and Complement ... 1199
Plescia, Cavallo, Amiraian & Heidelberger ... Aspect of Immune Haemolytic Reaction. Inhibition of Haemolysis by Reaction Products ... 1200
Wardlaw & Pillemer ... Inhibition of Bactericidal Activity of Properdin System by Zymosan and Other Properdin Binding Agents ... 1200
Heymann & Wahlig ... Properdin Level and Antibody Production in Rabbits during Immunization with *Myco. tuberculosis* and *Salm. typhosa* 1201
Gledhill ... Effect of Bacterial Endotoxin on Resistance of Mice to Ectromelia ... 1201
Matsubara, Mayeda, Tanabe & Shichikawa ... Experimental Production of Agglutination Activating Factor in Rheumatoid Arthritis ... 1201

BOOK REVIEWS

Medical Research Council ... Report of the Medical Research Council for the year 1957–1958 ... 1202
Elkins ... The Chemistry of Industrial Toxicology ... 1203
Berger & Melnick ... Progress in Medical Virology. Vol. 1 ... 1204

The Alphabetical List of Authors or Sources is on pages 2, 3 and 4 of cover.



treatment
suppression
eradication

'Daraclor' BRAND **TABLETS**

the LOGICAL answer to all forms of malaria

'Daraclor' is the nearest to W.H.O. Expert Committee requirements, being the most versatile antimalarial at present available. It combines a rapidly-acting schizonticide (chloroquine) and a prophylactic and suppressive agent (pyrimethamine).

Treatment 'Daraclor' ensures rapid control of acute malarial attacks.

Suppression 'Daraclor' is the most powerful suppressant known. Parasite-resistance is most unlikely.

Eradication 'Daraclor' is unsurpassed as a follow-up to vector control – mass single dose distribution is recommended.

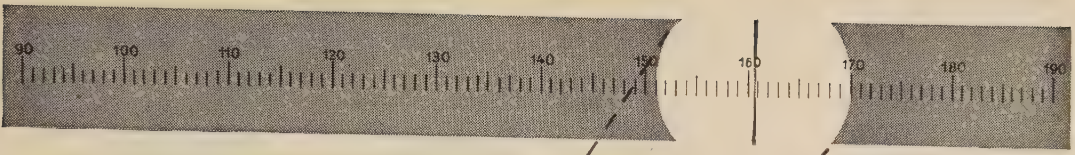
For protection of troops and labour forces, for individual treatment and protection, and in eradication programmes ...

'Daraclor'

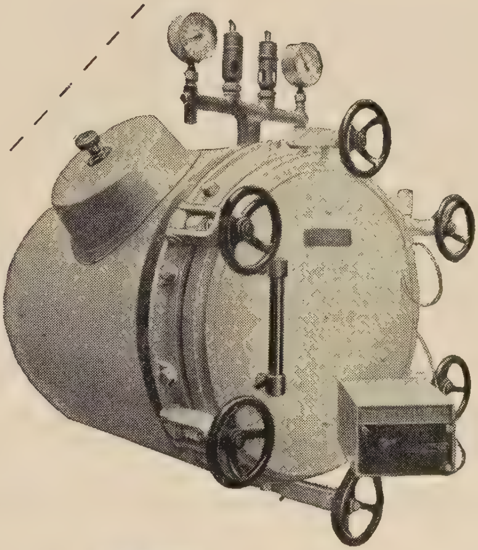
is the outstanding ALL-PURPOSE antimalarial

(Each tablet contains 15 mgm. pyrimethamine, and chloroquine sulphate equivalent to 150 mgm. chloroquine base).

BURROUGHS WELLCOME & CO. (The Wellcome Foundation Ltd.) **LONDON**
Associated Companies throughout the World



FOR ACCURATE TEMPERATURE MEASUREMENTS
in AUTOCLAVES
HOT AIR
OVENS and
other sterilising
equipment



The New Type TE5 Electric Thermometer. This handy, battery-operated thermometer with spot-illuminated scale, provides a means of ascertaining the *exact* temperature throughout the entire sterilising cycle in the centre of a dressing drum, in the "free" space, in a roll of cotton material or a syringe container, etc. etc.

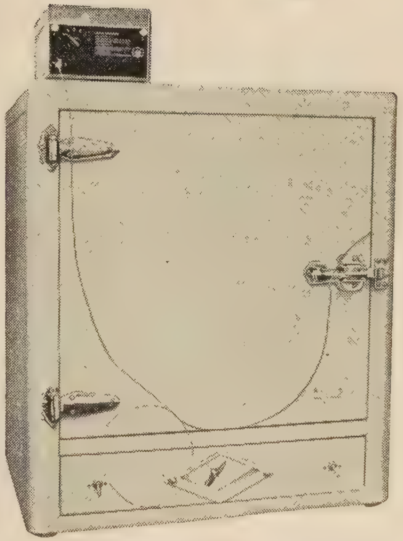
The 10 ft. thermocouples with fibre glass silicon lacquered insulation and measuring only 2mm × 1mm, can be introduced into the chamber between the door and the gasket and as many as 15 thermocouples may be used simultaneously.

Weighing only 7 lbs. the instrument is easily carried and always ready for use since no tiresome calibration is necessary.

Standard measuring range: 90 to 190°c.

Accuracy: ± 0·3% of the full scale.

For further details apply to:



SIEREX Ltd 241 Tottenham Court Road London W1 LANgham 2464

NOTE

The *Bulletin of Hygiene* is published in association with the *Tropical Diseases Bulletin*; the two are complementary, and contain abstracts of papers published in all parts of the world.

The *Bulletin of Hygiene* deals with:—

- Public Health
- Social Services
  - Maternal and Child Health
  - Health of Nurses, Students and Hospital Staffs
  - Care of Old Persons and the Chronically Ill
- Vital Statistics and Epidemiology
- Communicable Diseases
  - (except Tropical Diseases)
- Diseases due to Fungi
- Rheumatic Diseases
- Heart Disease
- Cancer
- Miscellaneous Diseases
- Dental Hygiene
- Mental Hygiene
- Occupational Hygiene
- Occupational Psychology
- Atmospheric Pollution
- Physiology as Applied to Hygiene
- Hygiene of Buildings
- Sanitation
- Port. Ship and Aviation Hygiene
- Infestation and Disinfestation
- Food and Nutrition
- Bacteriology and Immunity

The *Tropical Diseases Bulletin* deals with:—

- Protozoal Infections
  - (Malaria, trypanosomiasis, leishmaniasis and others)
- Rickettsial Diseases
- Tropical Virus Diseases
  - (Yellow fever and others)
- Tropical Bacterial Diseases
  - (Plague, cholera, dysentery, relapsing fever, yaws, leprosy and others)
- Helminthic Diseases
- Tropical Deficiency Diseases
- Other conditions related to warm climates
- Bacteriological, Entomological, Protozoological papers related to these diseases

The "quarantine diseases" are dealt with as follows: smallpox in the *Bulletin of Hygiene*; yellow fever, typhus, plague and cholera in the *Tropical Diseases Bulletin*.

All enquiries concerning advertisements should be made to the Bureau's agents, Messrs. Radclyffe's, Market House, The Parade, Taunton, Somerset.

CONTENTS

PAGE
Toxicity of Pesticides, by J. M. Barnes, M.B., B.Chir., M.R.C.S., L.R.C.P., Director, Medical Research Council Toxicology Unit 1205–1219

PUBLIC HEALTH

WORLD HEALTH ORGANIZATION ... First Report on World Health Situation 1954–56 1220
SOUTH PACIFIC COMMISSION ... ... Training for Health Education in South Pacific. Course for Health and Education Workers, sponsored by WHO and South Pacific Commission, held at Noumea, 1957 ... 1220

MATERNAL AND CHILD HEALTH

VERVOORN ... ... Obstetrics in Ahafo, Ghana 1221
BERFENSTAM & BILLE ... ... Tobacco Smoking during Pregnancy and Nursing 1221

VITAL STATISTICS AND EPIDEMIOLOGY

HUGON & LAMBILLON ... ... Course of Perinatal Mortality in Léopoldville, Belgian Congo 1221
IPSEN ... ... Social Distance in Epidemiology. Age of Susceptible Siblings as Determining Factor in Household Infectivity of Measles 1222
REID & FAIRBAIRN ... ... Natural History of Chronic Bronchitis 1222

COMMUNICABLE DISEASES

Infective Diseases

ANN. SOC. BELGE DE MÉD. TROP. ... Symposium on Virus Diseases in Central Africa. Stanleyville, 1957 1223

ALLWIN INVALID CHAIRS

ALLWIN

THE
TRANSIT
CHAIR

This is one item from a wide range of Invalid Carriages including Car Chair, Commode Chair, Standard Chair and Travaux Chair. Please send for a comprehensive catalogue.

RICHARDS SON & ALLWIN LTD.
GREAT BRIDGE, TIPTON, STAFFS
Telephone: Tipton 1206/7 *Telegrams: Sidway, Tipton.*

BACK ISSUES OF THE

Tropical Diseases Bulletin
AND
Bulletin of Hygiene
WANTED

During the years 1942 to 1945 many copies of the Bureau's *Tropical Diseases Bulletin* and *Bulletin of Hygiene* were lost in transit abroad by the sinking of ships, or were damaged in the Bureau's stack room by bombing, and the stocks of many issues for these years are now nearly or quite exhausted. The Bureau particularly needs copies of the *Tropical Diseases Bulletin*, 1944, v. 41, Nos. 2 to 8 and 1945, v. 42, Nos. 1 to 5, and of the *Bulletin of Hygiene*, 1942, v. 17, Nos. 6, 10 and 12, 1943, v. 18, Nos. 1 to 12 and 1944, v. 19, Nos. 1 to 3. The Director of the Bureau will be most grateful therefore to any readers who can spare copies of these scarce issues, if they will be so good as to contribute them or sell them back to the Bureau.

BUREAU NOTICES

The BULLETIN OF HYGIENE is issued monthly. The subscription price, payable in advance, for the twelve monthly parts with index, is £5. 0. 0., and the price of individual current numbers is 10s. 6d. For back volumes published a year or more previously (where still in print) the price is £7. 0. 0. per volume, and for individual copies the price is 14s. 0d. each.

Copies of the *Bulletin of Hygiene* printed on one side of the paper, for convenience of cutting and pasting up, are available on request at the cost of £5 10. 0. for the twelve monthly parts.

Also published by the Bureau of Hygiene & Tropical Diseases

TROPICAL DISEASES BULLETIN

containing classified summaries of current papers and reports from the medical and scientific publications of the world on diseases of the tropics and warm countries.

Yearly subscription (January to December) £5. 0. 0. post free.
Single numbers 10s. each.

The price of back volumes, where still in print, is £7. 0. 0. per volume, and for individual copies published a year or more previously the price is 14s. 7d.

Orders may be sent direct to the
BUREAU OF HYGIENE & TROPICAL DISEASES,
Keppel Street, Gower Street, London, W.C.1
or through any bookseller.
Telephone: Museum 3041

Cheques and Postal Orders should be made payable to the "Bureau of Hygiene & Tropical Diseases", and crossed "Westminster Bank Ltd.".

COMMUNICABLE DISEASES—*cont.*

		PAGE
Anderson	*Ps. pyocyanea* disseminated from Air-Cooling Apparatus	1224
Sayers, Stewart & Holt	Trial of Methods for Mass Inoculation	1224
Gabbrielli, Saletti & Braccini	Value of Combined TAB and Diphtheria Vaccine in Enteric Prophylaxis and as Diphtheria Booster Dose	1224
Kurokawa	Diphtheria Inoculation and Present State of Epidemic Diphtheria in Japan	1225
Calalb, Saragea, Ieremia, Maximesco, Ţupa, Stanica, Stoian, Ţaga & Gartner	Local Strains of *C. diphtheriae* isolated from 2 Endemo-Epidemic Foci; Types and Variants as related to Specific Phage-Bacterium Systems and to Local Endemo-Epidemic Peculiarities	1225
Beale & Campbell	Rapid Cytological Method for Diagnosis of Measles	1226
Henle, Crawford, Henle, Faz Tabio, Deinhardt, Guerra Chabau & Olshin	Prevention of Mumps. VII. Evaluation of Dosage Schedules for Inactivated Mumps Vaccine	1226
Wilterdink, Versteeg & Kuiper	Isolation of ECHO 9 Virus from Saliva of Inflamed Glands	1226
Crone	Vaccinia of Eyes	1226
Sifontes & Mirabal Font	Complications of Smallpox Vaccination	1226
Grist & Sommerville	Respiratory Virus Infections in Glasgow Area	1227
Siegert, Falke, Dietrich & Friolet	Infections with Influenza Virus Type D/Sendai in Germany	1227
Trotter, Dunn, Drachman, Henderson, Pizzi & Langmuir	Asian Influenza in U.S. 1957–58	1227
Widelock, Klein, Simonovic & Peizer	Laboratory Analysis of 1957–58 Influenza Outbreak in New York City. II. Seroepidemiological Study	1227
Blom & Van Leeuwen	Life-Saving Effect of rapidly administered intravenous Hydrocortisone in Case of Fulminating Viral Influenza Pneumonia	1228
Warburton, Duxbury & Greville	Antibody Response in Man to 2 Doses of Polyvalent influenza Virus Vaccine	1228
Duxbury, Warburton & Greville	Antibody Response to A/Asian Component of Polyvalent Influenza Virus Vaccine	1228
Gsell & Mäder	Vaccination against Adenovirus Infections, in Swiss Recruit Units 1958	1228
Jawetz	Shipyard Eye	1229
Smit	Acute Respiratory Disease in African	1229
Morris	Staphylococcal Pneumonia treated with "Spontin"	1229
Lane, Watling & Marshall	Case of Meningitis caused by *L. monocytogenes*	1229
Khoobyarian, Draper, Dwyer, Murthy & Walcher	Some Viral Central Nervous System Diseases. Laboratory Studies with Emphasis on Aseptic Meningitis	1230
Van Loghem	Pre-epidemic and Epidemic World Figures for Poliomyelitis	1230
Steigman & Lipton	Poliovirus-Neutralizing Antibody in Faeces of Poliomyelitic Children	1230
Andrieu, Enjalbert, Lapchine, Lareng & Didier	Epidemiological and Virological Study of Poliomyelitis in South West France	1230
Flato, Grodzicka-Królak & Malczewski	Isolation and Typing of Poliomyelitis Virus Strains from Patients during 1956 Epidemic	1230
Moscovici, Ginevri & Kempe	Distribution of Poliomyelitis and ECHO Viruses in Children's Institution	1231
Schmidt & Lennette	Microflocculation Test for Poliomyelitis. Flocculating Antibody Response in Human Poliomyelitis	1231
Ainley	Gastro-Intestinal Lesions in Bulbar Poliomyelitis	1231
Gelfand, Potash, LeBlanc & Fox	Intrafamilial and Interfamilial Spread of Living Vaccine Strains of Polioviruses	1231
Grist, Duncan, Landsman & Stevenson	"Not Poliomyelitis"	1232
Wissler & Wiesmann	"Summer Influenza" in Zürich 1958. Isolation of B1 Coxsackie Virus	1233
Sode & Baker	Acute Benign Pericarditis and Pneumonitis Associated with Coxsackie Virus Group B, Type 2 infection in Young Man	1233
Rannon, Goldblum, Leventon, Levi, Farin & Pushkin	Outbreak of ECHO 9 Disease in Israel	1233
Bárdos, Adamcová, Šimková, Rosický, Mrciak & Daniel	Natural Focus of Tick-Borne Encephalitis in High Tatras	1233
Beadle	Field Observations on Biting Habits of *Culex tarsalis* at Mitchell, Nebraska and Logan, Utah	1233
Copps & Giddings	Transplacental Transmissions of Western Equine Encephalitis. Report of Case	1234
Giddings, Copps & Sooter	Infectious Encephalitis in Colorado	1234
Sanmartin & Dueñas	Haemagglutination-Inhibition and Neutralization Tests for Venezuelan Equine Encephalomyelitis Virus	1234

London School of Hygiene and Tropical Medicine

(UNIVERSITY OF LONDON)

Incorporating the Ross Institute

KEPPEL STREET, (GOWER STREET), LONDON, W.C.1

Dean: Sir James Kilpatrick, *K.B.E., C.B.*, M.B., D.P.H.

The London School of Hygiene and Tropical Medicine provides the following courses of instruction:

(1) **Academic Postgraduate Diploma in Public Health:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Fee: £73 10s.

(2) **Academic Postgraduate Diploma in Bacteriology:** The course commences at the beginning of October each year and lasts for 9 months (whole-time). Applications must be received not later than 1 March. Fee: £73 10s.

(3) **Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene:** The course commences at the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.T.M. & H. course extending over approximately the first 4½ months. Applicants must elect to study one of the following subjects at the final part of the course:—Clinical Tropical Medicine: Tropical Hygiene. Fee: £73 10s. (£42 for the C.T.M. & H. only).

(4) **Diploma in Tropical Medicine and Hygiene (England):** The course for the Conjoint Board's Diploma is held twice a year: from the beginning of October to mid-February and from the beginning of March to mid-July. Fee: £42.

(5) **Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology:** The course commences about the beginning of October each year and lasts for 9 months (whole-time), the preliminary C.A.P. & E. course extending over approximately the first 4½ months. Fee: £73 10s. (£42 for the C.A.P. & E. course only).

(6) A course in **Statistical Methods applied to Medicine and Epidemiology** is held annually on two days a week from about the beginning of January to about the end of April. Students without a medical qualification can be accepted. Fee: £15 15s.

(7) **Public Health Engineering:** The course commences at the beginning of October and lasts for 9 months (whole-time). It is given in co-operation with Imperial College and is intended primarily for students with a university degree in civil engineering or an equivalent qualification. Applications to Imperial College. Fee: £60 plus £2 entrance fee.

(8) **Academic Postgraduate Diploma in Psychology:** Students who are registered for this Diploma at a College of the University may by arrangement attend lectures covering Part II, Section C (Occupational).

(9) **Diploma in Industrial Health:** The industrial health lectures and practical work arranged by the School for Diploma in Public Health students taking Industrial Health as their special subject are recognized by the Conjoint Board and by the Society of Apothecaries as fulfilling the requirements for entry to the D.I.H. examination.

(10) **Environmental Control:** A ten-weeks' course held twice in each academic year; commencing about the beginning of March and about the beginning of October. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: £27 6s. including registration fee.

(11) **Higher Degrees:** Facilities are provided for candidates studying for the degrees of Ph.D. and M.Sc. in appropriate subjects.

Clinical instruction is given at the Hospital for Tropical Diseases and elsewhere.

Enquiries should be addressed to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, (Gower Street), London, W.C.1. (Telephone: MUSeum 3041 and LANgham 7621).

COMMUNICABLE DISEASES—*cont.*

		PAGE
Schaeffer, Gajdusek, Lema & Eichenwald	Epidemic Jungle Fevers among Okinawan Colonists in Bolivian Rain Forest. 1. Epidemiology	1234
Work, Roderiguez & Bhatt ...	Virological Epidemiology of 1958 Epidemic of Kyasanur Forest Disease	1235
Seal	Outbreak of Encephalitis in Nagpur 1958	1235
Manchanda & Gupta	Acute Epidemic Encephalitis in Children at Amritsar. (45 cases)	1236
Ormay, Aradi, Nikodémusz & Losonczy	Focus of Haemorrhagic Nephrose-nephritis in Hungary ...	1236
Ackerman, Rabkin & Cavvadas	Typhoid Fever: Clinical Features	1236
Lipkin	Effect of Intervals and Number of Inoculations on Immunological Response to Typhoid-Paratyphoid and Dysentery Vaccines. II. Change of Immunological Reactivity during Different Systems of Vaccination and Revaccination ...	1236
Russu, Vladoianu, Naş, Muscan, Blasiu, Dancila & Totesco ...	Efficiency of Enteral TAB Vaccination	1237
Henze	Endemic Incidence of Bacillary Dysentery in Refugees and Indigenous Population	1237
Demina	Degree of Infection of Domestic Utensils with Dysentery Bacilli in Foci and its importance in Epidemiology ...	1237
Levi-Jovovic, Zdravkovic & Mikic-Jokovic	Dominant Ways of Transmission of Intestinal Infections in Area of Prizren	1238
De La Torre, Olarte & Joachin	Treatment of Shigellosis with Tetracycline in Infants under 2 years of age	1238
Zhdanov	Results and Prospects in Prophylaxis of Dysentery	1239

Tuberculosis

Karasu	Problem of Tuberculosis in Turkey	1239
Wicks	Trends in Epidemiology and Treatment of Tuberculosis ...	1240
Carpenter & Stewart	Trial of Self-Firing Heaf Multiple Puncture Machine ...	1240
Taubenhaus	Tuberculin Reaction in Female Hospital Patients	1240
Krebs	Diagnostic Possibilities in Double Infections with Human and Bovine Tubercle Bacilli	1241
Pacy	Thiacetazone and Erythrocyte Sedimentation Rate in Tuberculosis	1241
Nishihara, Froman & Weimer ...	Serial Determinations of Serum Glycoproteins and Proteins in Early Stages of Experimental Tuberculosis	1241
Boesaart	Tuberculosis of Placenta	1242
Sarkov	Anti-Tuberculosis Campaign in Bulgaria	1242
Short	BCG Vaccination and Depot Tuberculin Test	1242
Prinsley & Droller	Tuberculin Reactions and BCG Vaccination in Old Age ...	1243
Hartston	Uncommon Skin Reactions after BCG Vaccination	1243
Ellman & Andrews	BCG Vaccination	1244
Comstock & Merrell	Life Table Method applied to Results of Trial of BCG Vaccination in Algiers	1244

Venereal Diseases

Chaves	Evolution of Venereal Diseases	1244
Levy	Scrub Typhus in Differential Diagnosis of Venereal Disease	1245
Simpson, Matthis, Harris & Price	Evaluation of Rapid Plasma Reagin Test in Field Operation	1245
Brown & Bunch	How Good is the Reiter Protein Complement-Fixation Test for Syphilis?	1245
Rintelen	Prevention of Gonorrhoea in Newborn	1245
Ellis & Bereston	Reiter's Syndrome Versus Keratosis Blennorrhagica Sine Blenhorrhea	1245
Montgomery, Poske, Barton, Foxworthy & Baker	Mucocutaneous Lesions of Reiter's Syndrome	1246
Oates & Hancock	Neurological Symptoms and Lesions occurring in Course of Reiter's Disease	1246

Other Communicable Diseases

Smythe & Bull	Treatment of Tetanus Neonatorum with Intermittent Positive-Pressure Respiration	1246
Lawrence & Sando	Treatment of Severe Tetanus	1247
Ekcmann	Simultaneous Use of Serum and Toxoid in Prophylaxis of Tetanus	1247
Cherrick, Pothier, Dufour & Sherlock	Immunological Response to Tetanus Toxoid Inoculation in Patients with Hepatic Cirrhosis	1247

BUREAU OF HYGIENE AND TROPICAL DISEASES

Pneumoconiosis Abstracts Volume III

(covering the years 1951-55)

This volume, reviewed in this issue, is a sequel to the 2 preceding volumes published in 1953 and 1954, containing abstracts which first appeared in the *Bulletin of Hygiene*. The set of 3 volumes contains a comprehensive collection of abstracts of the important papers published in this field during a period of 30 years.

In addition to abstracts on the various forms of pneumoconiosis, abstracts of articles are included which deal with standards of air dustiness; with concentrations of dust from various processes; with technical methods of measurement of dust; and with the study of the physical properties of dusts and of their chemical and mineralogical characters.

Pneumoconiosis Abstracts

Vol. I	1926-1938	319 pp.	63s.
Vol. II	1939-1950	480 pp.	80s.
Vol. III	1951-1955	355 pp.	65s.

Orders should be sent to

PITMAN MEDICAL PUBLISHING CO., LTD.
39, Parker Street, London W.C.2.

COMMUNICABLE DISEASES—*cont.*

Zoonoses

		PAGE
Giorn. di Malattie Infettive e Parassit ...	Symposium on Brucellosis ...	1247
Ramah, Chomet, McLean & Lemke	Pulmonary Granuloma due to Brucellosis ...	1248
Elberg ...	Immunization against *Brucella* Infection. 7. Immunological and Epidemiological Studies in Córdoba, Spain ...	1248
Sil'Chenko ...	Epidemiological and Clinical Features of Tularaemia caused by Water-borne Infection ...	1249
Wysocka; Zwierz; Józefowicz; Bryc; Durlakówa; Łazuga; Karmańska; Dąbrowski; Czarski; Wajda ...	(i) Swamp Fever Epidemic in Lublin District in Years 1954–1955. (ii) Neurological Symptoms in Patients ...	1249
Zwierz, Durlakowa, Karmańska, Zwierzchowski, Łazuga & Korczyńska ...	Fauna in Foci of Leptospirosis Epidemic in Tomaszów Lubelski Region ...	1250
Ammons, Galton, Starr, Menges & LeMaistre ...	Human Leptospiral Infection due to one of *L. australis A* Group. Case in U.S.A. ...	1250

DISEASES DUE TO FUNGI

Gupta & Shome ...	Dermatomycoses in Uttar Pradesh. 620 Cases ...	1250
Ritchie & Pinkerton ...	*Fusarium oxysporum* Infection of Nail. Report of Cases ...	1250
Mitchell & Mitchell ...	Griseofulvin in Treatment of Favus ...	1251
Knight, Coray & Marcus ...	*Histoplasma capsulatum* and *Blastomyces dermatitidis.* Polysaccharide Skin Tests on Humans ...	1251
Horton, Larkin & Phillips ...	Acute Pulmonary Histoplasmosis ...	1251
Little, Bruce, Andrews, Crawford & McKinley ...	Treatment of Disseminated Infantile Histoplasmosis with Amphotericin B ...	1251
Fariñas ...	Treatment of Candidiasis of Skin Folds with Preparation 45705-A, Powder containing Mycostatin, Neomycin and Graneodin ...	1251
Villar ...	2 New Cases of Pulmonary Aspergilloma ...	1251
Pimentel ...	New Morphological Aspects of Pulmonary Aspergilloma. Probable Initial and Residual Stages ...	1252

RHEUMATIC DISEASES

Glynn, Glynn & Holborow ...	Secretion of Blood-Group Substances in Rheumatic Fever. Genetic Requirement for Susceptibility ...	1252
De Silva ...	Incidence of Rheumatic Fever in Ceylon ...	1253

CANCER

Doll ...	Occupational Lung Cancer ...	1254
Hueper ...	Carcinogenic Studies on Water-Soluble and Insoluble Macromolecules ...	1254
Mahrburg ...	Anatomopathological Investigations on Changes in Lung Tissue of Mice after Inhalation of Tobacco Smoke ...	1255

DENTAL HYGIENE

Mellanby, Martin & Barnes ...	Teeth of 5-Year-Old London Schoolchildren (1957) Compared with Results from 1929–57 ...	1255
De Meira & De Sousa ...	Dental Fluorosis in Cape Verde. Endemic Focus in St. Vincent ...	1255

MENTAL HYGIENE

Lambo ...	Form of Social Psychiatry in Africa. (Psychotherapy) ...	1255
Baker ...	Mental Health in Nyasaland ...	1256
Rosen ...	Social Stress and Mental Disease from 18th Century to Present. Some Origins of Social Psychiatry ...	1256

OCCUPATIONAL HYGIENE

Scott ...	Moral Responsibility and Dangerous Chemicals. Wyers Memorial Lecture 1958 ...	1257
Collins ...	Accidents in Naval Dockyard ...	1257

OCCUPATIONAL HYGIENE—*cont.*

PAGE

Gordon, Emerson & Pugh ... Patterns of Sickness Absence in Railway Population ... 1258
Jansen ... Effects of Noise on Physical Function ... 1258
Ruski ... Harmful Effect of Capsicin on Human Organism while working with Red Pepper ... 1258
Johnson ... True Exposure of Arc Welders by means of Simultaneous Sampling Procedures ... 1258
Mosinger, Fiorentini, Gras, Garcin, El Feki & Cartouzou ... Method for study of pneumoconiosis in laboratory: intrabronchial injection of dust in dogs by use of bronchoscope 1259
Mosinger & Cartouzou ... Histology and cytology of silicotic granulomata in peritoneum. Argentophil histiocytes ... 1259
Mosinger, Lissitzky, Cartouzou, Souchon, Reynaud & Miranda ... Nature of Proteins in Silicotic Nodules Produced Experimentally in Guineapigs ... 1259
Dautrebande, Beckman & Walkenhorst ... Deposition of Submicronic Dust Particles in Respiratory Tract ... 1259
Drasche ... Biological Effects of Industrial Mixed Dusts ... 1260
LaBelle & Brieger ... Synergistic Effects of Aerosols. II. Effect on Rate of Clearance from Lung ... 1260
Beckmann & Hilgers ... Early Silicosis ... 1260
Worth, Lühning, Muysers, Siehoff & Werner ... Residual Volume in Massive Silicosis associated with Perinodular Emphysema ... 1260
Sadoul & Metz ... Changes in Pulmonary Circulation in Pneumoconiosis ... 1261
Guyotjeannin ... Increase in Copper Content of Blood in Silicosis ... 1261
Lupu, Velican, Velican & Olinescu Action exerted by Certain Pneumoconiotic Factors on Acid Mucopolysaccharide Contents of Pulmonary Macrophages 1261
Cruickshank ... Interstitial Pneumonia and its Consequences in Rheumatoid Disease ... 1261
Ruyssen ... Case of Aspergillosis and Bronchiectasis in Coalminer suffering from Pneumoconiosis ... 1262
Ramsay & Pines ... Results of Treatment of Pneumoconiosis complicated by Tuberculosis ... 1262
American Rev. Respiratory Dis. Symposium on Emphysema and "Chronic Bronchitis" Syndrom, Aspen, Colorado, 1958 ... 1262
Storstein, Field, Massumi & Gray Airway Resistance and Lung Compliance. Effects of Histamine and Hyperventilation in Normal Subjects and Patients with Chronic Lung Disease ... 1263
Greenough ... Wet Collectors of Respirable Dust for Use with Coal Mine Vacuum Cleaners ... 1263
Andrzejweski & Mikuła ... Rotary Dust-Extractor for Cleaning Industrial Gases ... 1264
Reif ... Method of Measuring Dust Concentrations In Laboratory ... 1264
Sichel ... Size Distribution of Airborne Mine Dust ... 1264
Wheatley ... Measurement of Surface Area of Tridymite ... 1264
Schlipköter, Steiger Esser & Beck Electron Microscopic Studies of Mine Dust Precipitated on Membrane Filters ... 1264
Gross, Westrick & McNerney ... Pulmonary Response to Blast Furnace Stack Dust ... 1264
Horiuchi, Horiguchi & Suekane ... Industrial Lead Poisoning. I. Absorption, Transportation, Deposition and Excretion of Lead. 6. Lead Contents in Organ-Tissues of Normal Japanese ... 1265
Oshima ... Lead Poisoning. 1. Daily Variation of Lead Quantity in Urine ... 1265
Pernis, Bairati & Guibileo ... Alterations induced by Lead in Red Blood Cells as observed with Electron Microscope ... 1266
Savićević, Petrović, Stankovic & Djordjević ... Prophylactic Oral Administration of Ca_2EDTA in Workers Suffering From Lead Poisoning ... 1266
Friberg ... Metabolism of Mercuric Chloride and Methyl Mercury Dicyandiamide. Experiments on Rats given Subcutaneous Injections with Radioactive Mercury ... 1266
Montandon ... Argyria of Respiratory Tract ... 1267
Sunderman, Donelly, West & Kincaid ... Nickel Poisoning. IX. Carcinogenesis in Rats exposed to Nickel Carbonyl ... 1267
Suzuki *et al.* ... Selenium Poisoning. 1. Effects of Exposure to Air Pollution on Community Health in Neighbourhood of Selenium-Refining Plant ... 1267
Melville, Leffingwell & Hartwig Effects of Site of Injection and Radiation on Toxicology of Didymium Nitrate ... 1268
Minuth ... Effects of Inhaled Trichloroethylene Vapour and of Tobacco Smoke on Blood Picture of Rabbits ... 1268
Albahary, Guyotjeannin, Flaisler & Thiaucourt ... Transaminases and Occupational Exposure to Trichloroethylene I ... 1268
Torkelson, Wolf, Oyen & Rowe ... Vapour Toxicity of Allyl Alcohol as determined on Laboratory Animals ... 1269

OCCUPATIONAL HYGIENE—*cont.*

PAGE

Magos & Sziza ... ... Heinz-Body Formation and Haemoglobin Alteration ... 1269
Pernis & Bairati ... ... Electron Microscopy of Heinz Bodies 1270
Pecora ... ... Physiological Study of Summating Effects of Ethyl Alcohol and Carbon Monoxide 1270
Hayes ... ... Toxicity of Dieldrin to Man 1270
Toivonen, Ohela & Kaipainen ... Parathion Poisoning: Increasing Frequency in Finland ... 1271
Kondritzer, Mayer & Zvirblis ... Removal of Sarin from Skin and Eyes 1271
Murphy & DuBois ... ... Toxicity and Anti-cholinesterase Activity of Tributyl Phosphorotrithioate 1271
Céspedes, Montero & Sánchez ... Intoxication by Weed-Killer with Dinotrophenol Base ... 1271
Matthews ... ... Dermatitis in South Wales Mining Industry. Survey of 2 Collieries 1272

ATMOSPHERIC POLLUTION

Phair, Carey, Shephard & Thomson Some Factors in Design, Organization and Implementation of Air Hygiene Survey 1272
Lucas ... ... Atmospheric Pollution of Cities 1273

HYGIENE OF BUILDINGS

Heat Regulation, Ventilation and Lighting

University of Michigan School of Public Health ... ... Light and Vision 1273

SANITATION

Water and Swimming Baths

Shaw ... ... Water in Rural Areas 1274
Peel ... ... Water Supplies and Public Health in Tropical Africa ... 1274
Meyer ... ... Some Characteristics of Substance in Underground Water Affecting Survival of Salmonella Organisms 1274
Black, Lackey & Lackey ... ... Effectiveness of Iodine for Disinfection of Swimming Pool Water 1274

Sewage, Trade Waste and Refuse Disposal

McGauhey & Klein ... ... Removal of ABS by Sewage Treatment 1275

Infestation and Disinfestation

Wharton & Abu Hassan Bin Omar Effect of House Spraying with Dieldrin on Incidence of Head-Louse 1275
Brown ... ... Disinfestation of Furniture with Methyl Bromide for Control of Bed Bug 1276

FOOD AND NUTRITION

Foodstuffs

Nutting, Lomot & Barber ... Estimation of Coliform Bacteria in Ice Cream by Use of Membrane Filter 1276
Anderson, Burton & Crookall ... Current Trends of Strontium-90, Strontium-89 and Caesium-137 Levels in Milk 1276

Food Poisoning

Broomhead & Mann ... ... Family Outbreak of Salmonella Thompson Infection ... 1276
Graham, Payne & Taylor ... ... Salmonella Irumu Infection indirectly associated with South African Frozen Egg 1277
Cooper ... ... Acute Outbreak of Staphylococcal Enterotoxin Food Poisoning 1277
Houston ... ... Food Poisoning due to *Clostridium Welchii* 1277

BACTERIOLOGY AND IMMUNITY

General

Habeeb ... ... Bacteriological Media: Examination of Casamin E 1277
Eidus, Diena & Greenberg ... Observations on Use of Tetrazolium Salts in Vital Staining of Bacteria 1278

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriostatic and Bactericidal Substances; Disinfection

PAGE

Andrischock & Boese ... ... Diffusion Test or Tube Test 1278

Davis ... ... Rapid Haemoglobin-Reduction Method of determining Microbial-Antibiotic Susceptibility 1279

Mian ... ... Microbial Sensitivity Test in Management of Urinary Tract Infections 1279

Vaichulis & Doll ... ... Instability of Penicillin in Dubos Media 1279

Banič ... ... Transduction to Penicillin and Chloramphenicol Resistance in *Salm. typhimurium* 1279

Linz ... ... Ultra-violet Irradiation and Resistance of Colibacillus to Tetracycline 1279

Kuryło-Borowska ... ... Antibiotical Properties of Strain *Bacillus brevis* Vm4 ... 1279

Courtieu, Bertoye & Longeray ... Sensitivity of Certain Bacterial Strains to Ristocetin ... 1280

Funk & Divekar ... ... Caerulomycin, New Antibiotic from *Strep. caeruleus* Baldacci. I. Production, Isolation, Assay, and Biological Properties 1280

Murai, Sobin, Celmer & Tanner ... PA-108, PA-133A, PA-133B, and PA-148: New Macrolide-Type Antibiotics. I. Chemical Characterization 1280

Pénau, Hagemann & Velu ... ... Antibiotic Activity of New Strain of *Streptomyces* 1280

Woodside, Zief & Sumerell ... Antibacterial and Antifungal Activity of Thiol Esters ... 1280

Gillespie & Robinson ... ... Blanket Laundering and Sterilization. Trial at City General Hospital, Sheffield 1280

Walter & Kundsin ... ... Faulty Function of Table Model Ethylene Oxide Sterilizer ... 1281

Individual Bacteria

Van Oye ... ... Human Salmonelloses on Belgian Congo and Ruanda-Urundi: Statistics on 1,000 Cases 1281

Taylor & Silliker ... ... Isolation of Salmonellae from Food Samples. III. Dulcitol Lactose Iron Agar, New Differential Tube Medium for Confirmation of Micro-organisms of Genus *Salmonella* ... 1281

Kelemen ... ... Transduction Experiments in Salmonella Group 1282

Czerniawski, Sedlaczek & Zabłocki ... ... Properties of Antigen O of *Salm. typhi* in relation to Culture Media 1282

Rzucidło, Kubica & Biel ... ... Chemical Structure and Biological Properties of Cellular Residue of *Salm. typhi* 1282

Matějovská & Jelíneck ... ... Phage-typing of *Salm. typhi* 1282

Raettig ... ... Provocation of Infection by Vaccination. 2. Non-specific Provocation during Experimentally Produced Epidemic Conditions with *Salm. typhi-murium*. 3. Vaccination of an Endemically Infected Mouse Population 1282

Le Minor; Thome; Perreau; Charié-Marsaines; Edwards; Mille; Dréan; Néel ... ... New Salmonella Serotypes: (i) Salm. Millesi and Salm. Tchad. (ii) Salm. Quinhon. (iii) Salm. Spartel 1283

Ramsey; Edwards; Moran ... ... New Salmonella Types (i) Salm. Holcomb and Salm. Newrochelle. (ii) Salm. Escanaba 1283

Matsui ... ... Antigenic Changes in *Sh. flexneri* Group by Bacteriophage 1283

Weinbach ... ... Unusual Behaviour of Rabbit *Sh. sonnei* R Immune Sera in Indirect Haemagglutination Test 1284

Klečková Aldová & Jelínek ... Actual Problems of Epidemiology, Therapy and Prophylaxis of Bacterial Dysentery. I. Resistance of Shigellae to Sulphonamide 1284

Olarte & De La Torre ... ... Resistance of *Sh. flexneri* to Tetracyclines, Chloramphenicol and Streptomycin. 131 Freshly Isolated Strains 1284

Worthen, Czarnecki, Bennett & Fuller ... ... Role of Glycosides in Identification and Differentiation of Enteric Bacteria 1284

Hamon ... ... Demonstration and Identification of Colicinogenic Property in Different *E. coli* Phage-Types, Pathogenic for Infants. Epidemiological Significance 1284

McCarthy & Hinshelwood ... Phosphatase Activity of *Bacterium lactis aerogenes* 1285

Bachrach & Wormser ... ... Practical Laboratory Tests for Identification of *Proteus* Strains 1285

Kleinmaier & Quincke ... ... Incidence of *Ps. pyocyanea* Serotypes 1285

Hartmann ... ... Bacteriological Examinations in Diphtheria Cases in Berlin in 1957 and 1958 1286

Levina ... ... Influence of Diphtheria Toxin upon Local Inflammatory Reaction. 1. Specific Intensification by Diphtheria Toxin of Inflammatory Reaction in Skin of Guineapigs caused by Live Antoxigenic Strains of *C. diphtheriae* 1286

Long ... ... Immune and Allergic Reactions to Diphtheria Toxin and Toxoid in Guineapigs 1286

Individual Bacteria—*cont.*

PAGE

LONG ... Fate of ^{131}I-Labelled Diphtheria Toxin and Toxoid in Skin of Immune and Allergic Guineapigs ... 1286
WEISS ... Effects of Mechanical Agitation on Growth of H37Ra Strain of *M. tuberculosis* ... 1286
DIENA, EIDUS & GREENBERG ... New Method of counting Viable Organisms in BCG Vaccine 1287
KONNO & SBARRA ... Differentiation of Human Tubercle Bacilli from Atypical Acid-Fast Bacilli. III. Modification of Niacin Test, using Tween-Albumin Liquid Medium ... 1287
YAMAMURA, TANI, TERAI & YAMAMURA Virulence of Tubercle Bacilli using P^{32}-Labelled Bacilli. I. Comparison of Elimination *in vivo* of P^{32} derived from Heat-Killed Virulent and Avirulent Tubercle Bacilli ... 1287
TYSAROWSKI & KWIEK ... Catalase Activity of Mycobacterium Tuberculosis Strain H37Rv ... 1287
KAPRAL & SHAYEGANI ... Intracellular Survival of Staphylococci ... 1288
PIERCE ... Agar Diffusion Studies of Group A Streptococcal Antigens ... 1288
PACE & PAPPENHEIMER ... Immunochemical Study of Streptococcal Diphosphopyridine Nucleotidase ... 1288
HALL & GALE ... Pneumococcal Transformations *in vivo* ... 1289
MEYER & CAMERON ... Comparative Metabolism of Species and Types of Organisms within the Genus *Brucella* ... 1289
GLENCHUR, HALL & ZINNEMAN ... Blocking Antibodies in Rabbits Infected with *Br. melitensis* 1289
KAMAL ... Cultivation of *Br. Abortus* in the developing Chick Embryo. I. Qualitative and Quantitative Studies on S-form ... 1289
LOGAN, GRIFFITHS & MASON ... Specificity of Clearance Phenomenon in Lungs of Pertussis-Immunized Mice following Intratracheal Administration of Radioiodinated Pertussis Vaccine ... 1290
KUWAJIMA, MATSUI, NAKA & KISHIGAMI ... Histo-Pathological Changes in Lungs of Guineapigs Inoculated with Sonic Extract of *B. pertussis* ... 1290
MEISEL & RYMKIEWICZ ... Spore Antigens in Classification of Proteolytic *Clostridia* ... 1290
MILLER, EATON & GRAY ... Formation of Tetanus Toxin within the Bacterial Cell ... 1290
KATITCH ... Immunological Value of Anti-Toxoid Treatment of Tetanus 1291
ISTRATI & ISTRATI ... Immunization of the Brain to Tetanus Toxin ... 1291
IKIĆ ... Post-Inoculation Reactions caused by Tetanus P.T.A.P. Prophylactic with and without Addition of Typhoid and Paratyphoid Germs ... 1291
SAKAGUCHI & SAKAGUCHI ... Toxin Production of *Cl. botulinum* Type E. III. Characterization of Toxin Precursor ... 1291
MEISEL, ALBRYCHT & RYMKIEWICZ ... Kappa Toxin in Extracts from Mechanically Disrupted Cells and Spores of *Cl. perfringens* Type A ... 1291
CHERRY & FREEMAN ... Staining Bacterial Smears with Fluorescent Antibody. V. Rapid Identification of *B. anthracis* in Culture and in Human and Murine Tissues ... 1292
LEISE, CARTER, FRIEDLANDER & FREED ... Criteria for the Identification of *B. anthracis* ... 1292
STAMATIN & LI VAN SOB ... Isolation of a Specific Bacteriophage for the Species *B. anthracis* and of a Non-sporogenous Test-Strain of *B. anthracis* ... 1292
CIUCA, ZILIŞTEANU & NAFTA ... Sensitivity of Local Strains of *B. anthracis* to W (McCloy), Gamma (Brown and Cherry) and E$_1$ (Stamatin) Bacteriophages ... 1292
PATOČKA; SCHINDLER; MÁRA ... Pathogenicity of *Listeria monocytogenes*. I. Protein Substance isolated from Cells of *L. monocytogenes* enhancing Listeric infection. II. Influence of Substances isolated from cells of L. monocytogenes in Experimental Listeriosis in white mice ... 1292
BRILL, MIKULASZEK & TRUSZCZYŃSKI Immunochemical Investigations on the Antigenic Structure of *Erysipelotrix rhusiopathiae* ... 1293

Fungi

MARIAT ... Attempts at Cultivation of the Yeast Phase of Monkey Strain of *H. capsulatum* ... 1293
GADEBUSCH ... Phagocytosis of *Cryptococcus neoformans* in Anaemic Mice 1293
PINE & HARDIN ... *Actinomyces israelii*, Cause of Lacrimal Canaliculitis in Man 1294

Bacteriophages

DE VICENTE JORDANA ... Adsorption of Bacteriophage by Filters ... 1294
TOUSSAINT & MUSCHEL ... Neutralization of Bacteriophage by Normal Serum ... 1294
CORTESE ... Phage Neutralization by Properdin ... 1294

BACTERIOLOGY AND IMMUNITY—*cont.*

Bacteriophages—*cont.*

		PAGE
LOVELESS; STOCK	Influence of Radiomimetic Substances on Deoxyribonucleic Acid Synthesis and Function studied in *E. coli*/Phage Systems. II. Properties of Coliphage T2 Treated with Di(2-chloroethyl)-methylamine. III. Mutation of T2 Bacteriophages as consequence of Alkylation *in vitro*: Uniqueness of Ethylation	1295

Viruses

BRODA & FRISCH-NIGGEMEYER ...	Proceedings of the Fourth International Congress of Biochemistry. Vienna, 1958	1295
KOPROWSKI	Importance of Genetics of Viruses in Medical Research ...	1295
DMOCHOWSKI	Viruses and Tumours. Old Problem in Light of Recent Advances	1296
CROSS, HARDING & HEPLER	Certain Quantitative Aspects in Fixation of Complement by Viral Antigens and Antibodies	1296
BARSKI, CORNEFERT & WALLACE ...	Response of Ciliated Epithelia of Different Histological Origin to Virus Infections *in vitro*	1296
BEDSON	The Harben Lectures, 1958. Psittacosis-Lymphogranuloma Group of Infective Agents. I. History and Characters of these Agents. II. Position of Agents of Trachoma, Inclusion Conjunctivitis and Cat-Scratch Disease. Ecology of Agents of the Psittacosis-Lymphogranuloma Group. III. Diagnosis, Treatment and Control of Infection of Man with these Agents. Taxonomic Position of Group ...	1297
PEARCE & WEEKS	Suppression of Lesions and Development of Immunity by means of Antihyaluronidase in Vaccinia and Fibroma Infections	1297
PELMONT & MORGAN	Nutritional Factors influencing Growth of Herpes Virus in Strain L Cells of Earle	1298
FINKELSTEIN, ALLEN & SULKIN ...	Inhibition of Herpes Simplex Virus by Normal Serum: its Relationship to Properdin System	1298
STOKER & NEWTON	Effect of Herpes Virus on HeLa Cells dividing Parasynchronously	1298
FARNHAM & NEWTON	Effect of Some Environmental Factors on Herpes Virus grown in HeLa Cells	1298
CANTELL	Mumps Virus. Propagation of Mumps Virus in Chick Embryos during Serial Allantoic Passages with Undiluted Inocula	1298
RUSSELL & MORGAN	Mumps Viral Cytolysin. I. Action on Human Epithelial Cells in Tissue Culture	1299
RODRIGUES-DA-SILVA & FELDMAN ...	Formalin treated Chicken Erythrocytes as Indicators of Influenza A Virus and its Antibody	1299
PRIMAVESI	Detection of Hepatitis Virus by means of Characteristic Changes in Liver of Chick Embryos	1299
ŽÁČKOVÁ, JASTROWOVÁ & ŽÁČEK ...	Lymphocytic Choriomeningitis Complement-Fixing Antigen prepared by Bentonite Purification	1299
BLOOM, MACK, KRUEGER & MALLMANN	Identification of Enteroviruses in Sewage	1299
GELFAND	Incidence of Certain Endemic Enteric Virus Infections in Southern Louisiana	1300
DARNELL & SAWYER	Variation in Plaque-Forming Ability among Parental and Clonal Strains of HeLa Cells	1300
DEKEGEL	Comparative Study of Aerobic Glycolysis by Different Cell Strains in Tissue Culture. Possible Relation between Poliomyelitis Virus Susceptibility and Glycolytic Metabolism	1300
WENNER; ARCHETTI; DUBES ...	Antigenic Variations among (i) Type 1 Polioviruses. 16 Wild-Type Strains and 5 Variants. (ii) Type 3 Polioviruses	1301
IONESCU-MIHAIESTI, HORODNICEANU, SERGIESCU & KLEIN	Comparative Study on Reference Poliomyelitis Antisera prepared in Small Laboratory Animals	1301
HALONEN, ROSEN & HUEBNER ...	Homologous and Heterologous Complement-Fixing Antibody in Persons Infected with ECHO, Coxsackie and Poliomyelitis Viruses	1302
MAYER	Lipotropism of Coxsackie Virus (Type B1) in Weaned White Mice	1302
BELL & HADLOW	Responses of Newborn and Adult Domestic Rabbits to Infections with Coxsackie Viruses	1302

BACTERIOLOGY AND IMMUNITY—*cont.*

Viruses—*cont.*

PAGE

CAJAL, MATEESCU & COPELOVICI ... Susceptibility of Adult Mice to Pathogenic Action of Coxsackie Virus following Ionizing Irradiation (X and β) ... 1302

HENDERSON & TAYLOR ... ... Arthropod-Borne Virus, Plaques in Agar Overlaid Tube Cultures 1302

HARDY ... ... Growth of Venezuelan Equine Encephalomyelitis Virus in Various Tissue Cultures 1302

GOMES & CAUSEY ... ... Bussuquara, New Arthropod-Borne Virus 1303

LIBÍKOVÁ ... ... Viruses of Tick-Borne Encephalitis Group in HeLa Cells ... 1303

GRESÍKOVÁ-KOHÚTOVÁ ... ... Effect of pH on Infectivity of Tick-Borne Encephalitis Virus 1303

LIBÍKOVÁ & VILCEK ... ... Simple Neutralization Test for Viruses of Tick-Borne Encephalitis Group, depending on Complete Cytopathic Effect in HeLa Cells 1303

ŽÁČKOVÁ & ŽÁČEK ... ... Some Problems of the Simpler and Safer Preparation of Encephalitis Complement-Fixing Antigens 1303

SMITH & WESTGARTH ... ... Use of Survival Time in Analysis of Neutralization Tests for Serum Antibody Surveys 1304

WAGNER, SNYDER, HOOK & LUTTRELL Effect of Bacterial Endotoxin of Resistance of Mice to Viral Encephalitides. Including Comparative Studies of Interference Phenomenon 1304

MATUMOTO, NISHI & SABURI ... Multiplication of Neurotrophic Rift Valley Fever Virus in Mouse Liver and Spleen 1305

JUNGEBLUT & KODZA ... ... Interference between Certain Neurotrophic Viruses in Tissue Culture 1305

LIEBENOW & SCHMIDT ... ... Isolation of Infectious Ribonucleic Acid from Brains of Mice Infected with M-M Virus 1306

POPE ... ... Virus of the Encephalomyocarditis Group from a Water-Rat in North Queensland 1306

Immunity

DUBOS & SCHAEDLER ... ... Nutrition and Infection 1306

LEDERBERG ... ... Genes and Antibodies. Do Antigens bear Instructions for Antibody Specificity or do they select Cell Lines that arise by Mutation? 1306

SHEWELL & LONG ... ... Influence of Thyroid Gland on Antitoxin Production in Different Species 1307

SCHWARTZ, EISNER & DAMESHEK ... Effect of 6-Mercapturine on Primary and Secondary Immune Responses 1307

DIXON & WEIGLE ... ... Nature of Immunological Inadequacy of Neonatal Rabbits. II. Antibody Formation by Neonatal Splenic Cells transferred to Adult Recipients 1307

TALMAGE ... ... Immunological Specificity. Unique Combinations of Selected Natural Globulins provide an Alternative to Classical Concept 1308

BJØRNEBOE & SCHWARTZ ... ... Changes in Serum Proteins during Immunization. Cause of Hypoalbuminaemia with High Gamma Globulin Values 1308

TAYLOR & LEON ... ... Third Component of Human Complement: Resolution into 2 Factors and Demonstration of a New Reaction Intermediate 1308

TURK ... ... Immune-Adherence Activity of Normal Serum 1308

BIER & SIQUEIRA ... ... Prevention by Intravenous Injection of Antigen and Antibody of Passive Arthus Reaction to Unrelated Immune System 1309

BENACERRAF, SEBESTYEN & SCHLOSSMAN ... ... Quantitative Study of the Kinetics of Blood Clearance of P^{32}-Labelled *E. coli* and Staphylococci by the Reticulo-Endothelial System 1309

BENACERRAF, KIVY-ROSENBERG, SEBESTYEN & ZWEIFACH ... ... Effect of High Doses of X-Irradiation on Phagocytic, Proliferative, and Metabolic Properties of Reticulo-Endothelial System 1309

MISCELLANEOUS

DÖLL ... ... Hygiene of Hairdressing Establishments in Berlin 1310

BOOK REVIEWS

BURNET ... ... Clonal Selection Theory of Acquired Immunity 1310
BROCKINGTON ... ... World Health 1311
PATTY ... ... Industrial Hygiene and Toxicology. Vol. I. General Principles 1311
GALE ... ... Epidemic Diseases 1312
MORICHAU-BEAUCHANT ... ... La Santé dans le monde 1312

The Alphabetical List of Authors or Sources is on pages 3 and 4 of cover.

OCCUPATIONAL HYGIENE ABSTRACTS

Published for the use of all directly concerned with the well-being and efficiency of workers in mining and other industries, the Abstracts consist of the following sections of the *Bulletin of Hygiene*:—

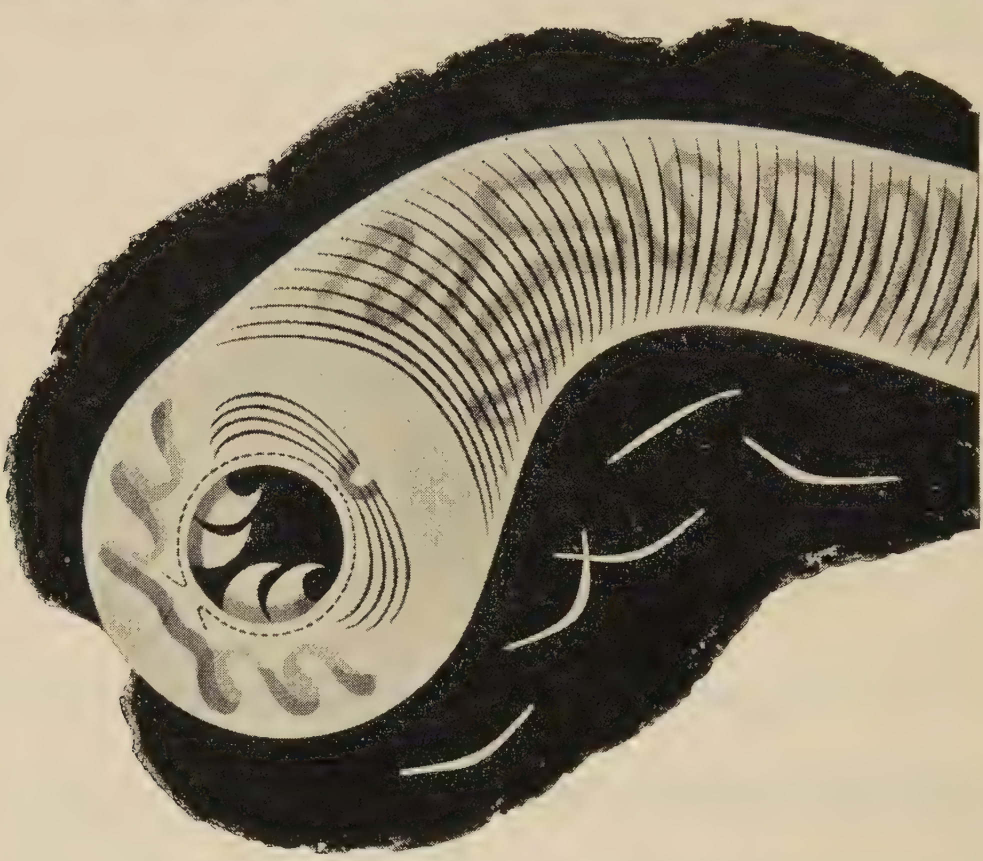
OCCUPATIONAL HYGIENE
ATMOSPHERIC POLLUTION
OCCUPATIONAL PSYCHOLOGY
PHYSIOLOGY AS APPLIED TO HYGIENE
HYGIENE OF BUILDINGS

Annual Subscription (JANUARY–DECEMBER) *including Index* 30/– ($4.25)

Obtainable from

THE BUREAU OF HYGIENE & TROPICAL DISEASES
KEPPEL STREET LONDON W·C·I *TELEPHONE: MUSeum 3041*

hookworm – a hidden threat to health and life



Hookworm can now be removed simply and safely – by a single dose of ' Alcopar '.

' Alcopar ', a new, easily-administered drug discovered by the Wellcome Laboratories of Tropical Medicine, offers outstanding advantages over tetrachlorethylene and other treatments.

★ **A single dose gives simultaneous control of hookworm and roundworm infections**
★ **Suitable for patients of all ages**
★ **Purgation unnecessary**
★ **No toxic effects, therefore ideal for routine mass treatment**

Issued in single-dose sachets of 5 gm. containing bephenium hydroxynaphthoate equivalent to 2·5 gm. bephenium (base)

Packs of 25 and 100 sachets

Literature giving detailed clinical information on 'Alcopar' is available

'Alcopar' BRAND

dispersible granules

BURROUGHS WELLCOME & CO. (The Wellcome Foundation Ltd.) **LONDON**

Associated Companies throughout the World

BUREAU OF HYGIENE AND TROPICAL DISEASES

BULLETIN OF HYGIENE

Volume 34, No. 1

January 1959

Public Health

BACKER, K. H. **The Health System and the Medical Profession in Denmark.** *Danish Med. Bull.* 1958, Aug., v. 5, No. 6, 185–200, 1 fig.

The evolution of the Danish Health System has stretched over 150 years. It has 2 components: (a) the hospital service financed mainly by taxation and employing half the doctors of the country on a full-time salaried pensionable basis, and (b) family doctors, and specialists outside hospitals, mainly financed by a health insurance scheme.

Most of the hospitals are administered by the local authorities, town or county, but the State is responsible for the mental hospitals and for 2 general hospitals including the University Hospital in Copenhagen. Some of the special hospitals such as those for tuberculosis, cancer and orthopaedics are under private management but they receive heavy State subsidies. The total number of hospital beds for medical and surgical patients has increased from 4,979 in 1890 to 25,016 in 1956; the latter being 5·6 per 100,000 of the population.

The procedure for ensuring that the best candidates are appointed to the senior positions in hospitals is described. The salaries paid to senior medical staff are between £2,000 and £2,500 a year but some private consultative work is allowed and there are other financial advantages as a result of which " in Denmark doctors occupy a favourable position ".

Out-patient departments are used mainly for follow-up and casualty work. The normal charge for hospital treatment is 7s.–12s. a day but for the 75% of the population in the insurance scheme for those of limited means treatment is free. The cost to public funds of maintaining the public hospitals has increased over 6-fold since 1936–7.

Sickness insurance societies started as a private venture in 1857 but since 1892 they have been regulated by law. They are, however, still voluntary though they receive subsidies from the State. They are primarily for the impecunious but there is provision for those whose income rises above the limit to continue with the insurance. Including the 11% of the population in this " continuation " scheme 88·6% of the inhabitants of Denmark are covered by insurance.

The rate of premium is uniform and on a family basis, children being included. The benefits include medical attendance, treatment in hospital and drugs, but cash payments for maintenance during illness are an optional benefit and few pay the extra premium required. The insurance societies pay to hospitals only half the normal charge. As the societies can by law pay for treatment only, payment for prophylactic measures is made by the health authorities. The Danish Medical Association negotiates rates of pay direct with the insurance societies: it is by capitation in the towns and by fee per attendance in the country.

In Copenhagen the general practitioners have established their own laboratory. It is not a policlinic or diagnostic centre but simply makes tests at the request of a doctor and reports the results. Outside Copenhagen this work is done in hospital laboratories.

The State has set up an arbitration committee to which disputes can be referred. It has 6 members 3 of whom are nominated by the Medical Association.

The gross income of a general practitioner from insurance practice is the equivalent of between £2,000 and £3,000 a year. He also receives fees from patients not insured, from the health authority and any appointment he may hold and, in rural districts, a mileage allowance. There is a pension scheme. The family doctor has an assured social position and it is he who arranges hospital admissions.

At State level medical functions are spread over many departments; there is no Ministry of Health but the National Health Service, which is in the Ministry of Internal Affairs, acts as a coordinator in an advisory capacity.

The Danish Medical Association exercises disciplinary functions over its members and anyone whose membership is withdrawn is excluded from insurance practice.

A commission set up in 1957 is examining the whole system of medical care in Denmark but has not yet reported.

Allen Daley

STEUART, G. W., MEHARCHAND, A., JOHN, J. & GAJADHUR, B. **Education in Sanitation with an Indian Community in South Africa.** *J. Indian Med. Ass.* 1958, June 1, v. 30, No. 11, 357–61.

This paper describes the method of work and results obtained in an intensive health education campaign carried out among a poor, but long-established and cohesive, community of 721 Indian families in Durban.

A 1-in-4 sample of families was surveyed before and after a 10-week field campaign, attention being paid to adequacy and cleanliness of sewage disposal facilities, method of garbage disposal, maintenance of any attack on house-flies, and infant food hygiene. The main educational method employed was group discussions, in which members of the group were to a great extent free to raise their own topics: sanitation and communicable disease made up nearly 70% of those "mentioned" throughout, and of "social categories" discussed the family was the category most often mentioned. The most significant improvement demonstrated by the survey after the field campaign was in cleanliness of latrines. Comparatively few structural improvements of latrines were observed. Anti-house-fly measures and infant food hygiene improved significantly.

The size of the health education team is not mentioned; in the course of the campaign the aid was enlisted of all possible organized bodies such as welfare societies, religious and parents' organizations and schools. [The results of a further follow-up after, say, a year would be of interest.] *B. B. Waddy*

Maternal and Child Health

Lambillon, J. Évolution du problème obstétrical à Léopoldville. **[The Development of Obstetric Problems in Léopoldville, Belgian Congo]** *Acad. Roy. Sci. Coloniales Bull. des Séances.* Brussels. (n.s.) 1957, v. 3, No. 7, 1389–1410. [13 refs.]

Before 1938 doctors working in the Belgian Congo undertook little or no maternity work and came to the erroneous conclusion that easy and normal parturition was almost universal. Since that year maternity work has been rapidly increasing and observations are now possible.

(a) The African foetus is highly susceptible to anoxia.

(b) The low birth weight is to some degree responsible for easy parturition; but this low birth weight is not racial. It tends to increase with ante-natal care.

(c) Pelvic anatomy of the mothers is different from that of Europeans—it may change with repeated pregnancies. It is suggested that this may be due to some form of osteomalacia which is partly induced by prolonged lactation.

Ante-natal care can correct the anaemia, cheilosis and glossitis all of which are common. Diabetes in pregnant women is almost unknown, though some show high glucose tolerance. Vomiting of pregnancy is not found in rural areas, but is increasing in urban areas. Eclampsia is increasing at a most alarming rate. It is sometimes accompanied by lack of fibrinogen with severe haemorrhage.

There is a valuable section on abnormal presentations and their management, while the author finds that Caesarean section can be extremely useful, he warns that operative interference may be followed by virus hepatitis unless aureomycin and other appropriate remedies are used in prophylaxis.

Both maternal and perinatal mortality have been greatly reduced since the appointment of a full-time specialist obstetrician at the hospital.

Lactation is readily established in 95% of mothers, but, as in other urban communities, this percentage is decreasing at an alarming rate.

The author makes a strong appeal for large maternity hospitals staffed and equipped to deal with all kinds of emergencies.

In effect it is necessary to: (a) prevent obstetric complications, (b) deal with them when they occur, (c) reduce disasters by educating the mothers, (d) improve neonatal mortality rates by better care of the premature.

[The article includes much that is valuable in the way of original observations. It is not clear how a few large maternity hospitals can meet the needs of a scattered rural population, or how the maternity hospitals fit in with the subsequent care and supervision of mother and child. There is obviously need for more study of specific needs and trends.]

Cicely D. Williams

Macgregor, M. **Paediatrics in Western Nigeria.** *Arch. Dis. in Childhood.* 1958, Aug., v. 33, No. 170, 277–91, 8 figs. [10 refs.]

Observations were made while the author worked at Adeoyo Hospital, Ibadan, and was in charge of the children's wards with 36 beds. In one sample month 121 children were admitted to those beds (during the same period there were 200 adult admissions to the 131 adult beds). 25% of the 8,000 new out-patients each month were children. About 300 children attended the out-patient department daily. The mortality in the children's wards was about 26%; half of the deaths were of children under one year.

During one year the chief causes of admission and death were pneumonia and diarrhoea and vomiting.

	Admissions	Deaths
Pneumonia	309	111
Diarrhoea and vomiting	243	74
Protein malnutrition	157	54
Anaemia	223	29
Other alimentary disorder Other nutritional diseases Protozoa and helminths	207	29
Unexplained and unclassified	80	46
Total deaths		488

There is a description of social factors and detailed comments on the most prevalent diseases, few of which are among the "tropical" diseases. The author draws attention to the need for "imaginative adaptation of European techniques" in the training of students and in dealing with "the insistent tumultuous pressure of patients".

[This is an excellent article giving a vivid picture of the need, but there is little attempt to outline any plan for meeting these needs.] *Cicely D. Williams*

KAHN, E., WAYBURNE, S., SHNIER, M. H., STEIN, H., CRONJE, R. E., FREIMAN, I., LEVIN, S. E., ORSKA, I., REEF, I. & THEUNISSEN, J. **Ten Years of Bantu Pediatrics.** *Med. Proc.* Johannesburg. 1958, May, 17, v. 4, No. 10, 253–65, 4 figs. [21 refs.]

The Paediatric Unit at Baragwanath Hospital, Johannesburg, has 213 beds for children up to 9 years of age. In 10 years 30,000 children have been admitted to the wards. The number of out-patients has grown from 13,500 in 1949 to 90,000 in 1956.

The hospital serves a population of over 300,000 with a birth rate of 27 and an infant mortality rate of 142 per 1000 live births.

Of 5,051 admissions in 1956, 1,413 were due to diarrhoeal disorders and 711 to deficiency diseases, of which 500 were severe protein malnutrition.

The perinatal problems are extensive owing to a high proportion of twins and to malnutrition in mothers, giving rise to small and premature babies. There is a short description of the organization of the Premature Unit.

Tuberculosis is prevalent and the patients are often admitted moribund. The majority of patients with tuberculosis are treated in municipal clinics.

Poliomyelitis is serious and occurs in epidemics. Only a small proportion of diagnosed cases are non-paralytic. Meningitis is common and the results are poor as many patients are brought in late. Encephalitis also occurs.

Anaemia is common. There were 35 children with "Cachectic purpura" which is often seen in severe protein malnutrition, tuberculosis or salmonellosis. There are only 1–3 cases of leukaemia yearly.

Glomerulo-nephritis was diagnosed in 51 children, and there was only 1 case of Type II nephritis.

There were 25 cases of infective hepatitis and 2 of veno-occlusive disease of the liver, but none of cirrhosis of the liver. Pyloric stenosis is exceedingly rare among the Bantu, while coeliac disease has not been seen.

The commonest cause of poisoning is the drinking of paraffin.

In 1956 there were 42 admissions for rheumatic fever, and 14 with chorea, of whom 5 were Euro-Africans. The incidence of congenital heart disease is probably the same as in Europe. In 10 years there have been 7 cases of idiopathic cardiac hypertrophy.

No case of Hodgkin's disease has been seen in 10 years. Diabetes has not been encountered in patients under 9 years of age, although this disease is common in the adult Bantu. Not one case of congenital dislocation of the hip has been seen although it is often encountered in neighbouring hospitals for European children. Mongolism has the same incidence as in Europeans. Rickets is common in the urban Bantu.

"There has been a profound change in the attitude of the modern Bantu mother towards modern medicine; her faith in the curative service is now firmly established and there is a growing faith in the preventive health services."

The nursing in the Paediatric Unit is of a high standard and is constantly improving. It is entirely undertaken by non-Europeans.

[This is a truly monumental article. It should be read attentively by all who are interested in the health of newly developing countries. It gives a careful, well documented account of the disorders encountered, and also an account of how the services are organized and related to specific problems. The Premature Unit is particularly notable. Here no incubators are used, but mothers are admitted with the babies and learn how to undertake the entire child care themselves. It is a method which should receive more attention.

The success and efficiency of the Children's Unit at Baragwanath is not sufficiently well-known, and is modestly reported here, but this is a place that deserves to be far more widely recognized and appreciated. The continuity of staff, the excellent teaching and the concern for the continuing care of the patients are outstanding. It would be preferable for doctors who work or who intend to work in underdeveloped communities to study the "growth and development" of the Children's Unit at Baragwanath Hospital rather than to learn their Paediatrics in the vastly different conditions that obtain in a U.S. community such as that described in Dr. GEPPERT'S illuminating analysis (below).] *Cicely D. Williams*

SLONE, D., LEVIN, S. E. & ORSKA, I. **Hypertonic Dehydration in Infants. The Clinical and Biochemical Features.** *Med. Proc.* Johannesburg. 1958, May 17, v. 4, No. 10, 265–7.

1,000 cases of diarrhoea and vomiting are admitted annually to Baragwanath Children's Unit; 85% of them are in poor nutritional state.

Of 60 children with dehydration or acidosis or both, 5 showed hypertonic dehydration. In these cases the nutritional state was satisfactory, but dehydration was minimal, skin turgor not markedly reduced, and there were neurological symptoms (irritability, convulsions, tetany, high piercing cry) with pyrexia, hyperpnoea and oliguria or anuria. The blood chemistry was as follows:—

Sodium values 146–156 mEq. per litre.
Chlorides all above 114 mEq. per litre.
Potassium within normal ranges.
CO_2 combining power markedly reduced.
Blood urea above 150 mgm. per 100 cc. in 3 of 5 cases.

North American authors have found that 10–25% of patients admitted for gastro-enteritis have hypertonic dehydration. At Baragwanath hospital the incidence is unknown, but when it is discovered it is not wise to begin intravenous therapy with 1/6 molar lactate or other solution containing sodium chloride in excess of

N/4 saline. The condition must be distinguished from pneumonia, salicylate poisoning, encephalitis, meningitis and renal tubular necrosis.

[It would be instructive to know the state of the serum glucose and of the serum calcium in these cases.]

Cicely D. Williams

Geppert, L. J. **Composition of Pediatric Practice at a Permanent Army Base in the Antibiotic Era.** *Pediatrics.* Springfield, Ill. 1958, Aug., v. 22, No. 2, 336–63, 3 figs.

The information is collected from the families of United States Service personnel stationed in Tokyo during a period of 10 years. The child population under 10 years of age was about 10,000 and this was "constant but not static". The tables classify the out-patients and in-patients and the deaths for a child population of 100,000 for 1 year. Apparently there were few home visits by paediatricians, but telephone calls outnumbered all other types of consultation. The service included every form of up-to-date treatment, with adequate facilities for investigation, supervision, advice and protective inoculations. Of the total of 420 who died, 95% were autopsied.

The following table summarizes the mortality and morbidity rates per 100,000 children for 1 year. "Newborn morbidity" refers to babies in the first month of life. "Pediatric" includes patients of 1 month to 10 years.

				Deaths	
	Out-patients	*In-patients*	*Newborn morbidity*	*Newborn*	*Pediatric*
1. Lower plant or animal parasites (infection)	86,900	5,057	173	15	69
2. Trauma or physical agent	5,013	900	470	4	14
3. Higher plant or animal parasites (infestations)	4,127	163	1		5
4. Metabolism, growth & nutrition	3,728	370	173		8
5. Intoxication	3,724	426	154		3
6. Prenatal influence	3,110	1,301	918	166	58
7. Unknown cause with structural reaction	2,650	72	2		
8. Innervation or psychic control	2,126	308			
9. New growths	379	186	133		44
10. Unknown cause with functional reaction	247	23			
11. Static mechanical abnormalities	148	17			1
12. Circulatory disturbances	38	8			
13. Undetermined cause	560	170	4		
14. Prematurity only			790	33	
Total	112,750	9,001	2,818	218	202

(1) *Bacterial and Virus Infections* (p. 340). Of the 22 deaths from respiratory infection, 18 were due to bronchopneumonia. Deaths from infection of the digestive system amounted to 23, of which 4 were among the newborn. Of the 19 paediatric deaths, only 1 case was ascribed to a known pathogen—*Escherichia coli.* There were no deaths among the 75 admissions for *Salmonella* infections, there was 1 among the 87 for *Proteus*, none among the 123 for *Shigella* and 2 among the 59 for *Pseudomonas.* But among 215 admission for "diarrhea, cause undetermined" there were no less than 19 deaths.

There were also 8 deaths from acute meningitis and 12 from tuberculous meningitis.

(2) *Trauma or Physical Agent* (p. 347). Owing to strict law enforcement there were no deaths from automobile accidents or drowning though falls produced 4 fatal head injuries.

(3) *Infestation* (p. 347). This group accounted for 3·7% of out-patients but only 1·2% of deaths.

(4) *Metabolism, Growth and Nutrition* (p 347). There were 6 deaths from malnutrition and marasmus. There were 203 cases of obesity, of which 21 needed admission. There were 19 coeliac patients and 10 diabetic patients.

(5) *Intoxication* (p. 347). The only 2 deaths recorded were from aspirin poisoning. There were 430 cases of eczema, 319 of diaper rash, 172 of urticaria, 561 of allergic rhinitis, 511 of asthmatic bronchitis, 142 of food allergy and 83 of severe inoculation and injection reactions.

(6) *Deaths due to Prenatal Influence* (p. 347). 90% of neonatal deaths and 61% of all deaths were due to natal or prenatal causes. Out of 201 deaths under the age of 12 months, 33 were due solely to prematurity.

(7) *Diseases of Unknown Cause and Structural Reaction* (p. 355). This includes conditions such as dental caries, geographical tongue, bursitis and ulcerative colitis. It only includes 0·8% of in-patients and 0·7% of deaths. 1 out of 4 children had untreated dental caries.

(8) *Diseases Secondary to Disturbances of Innervation and Psychic Control* (p. 356). 941 children attended for behaviour disorders and 155 of these with "aggressive behaviour". The group also includes cases of migraine, convulsions and epilepsy. The whole group produces 3·4% of out-patients but no deaths. Only 36% of children seen in the Child Guidance Clinics were referred from the paediatricians. It is deduced that regular paediatric supervision can prevent certain behaviour disorders.

(9) *New Growths* (p. 358). These accounted for 10·4% of deaths. Out of 44 deaths, 16 were due to acute leukaemia.

(10) (11) (12) (13) These groups include conditions such as constipation, vomiting, teething, prolapse of rectum. The 1 death recorded was from thrombosis of the internal carotid.

(14) *Prematurity.* There were 790 cases with 33 deaths, all before the end of 1 month.

[It is to be presumed that environmental conditions were as good as money, ingenuity and social services can make them, and that all births took place in hospital. The most noteworthy facts are:—

(1) Even under such ideal conditions infective conditions caused 20% of the deaths. Of 22 deaths from diarrhoea, only 3 could be ascribed to a known pathogen.

(2) Cases of coeliac disease and diabetes are not infrequent. Obesity is common and allergies are abundant.

(3) Congenital deformities, prematurity and conditions associated with prenatal and intranatal factors account for 61% of all deaths.

(4) Behaviour problems are common. The author states that many of these disturbances are avoided when "well baby" check-ups are systematically continued as "well child" check-ups. "The handling of such patients is extremely time consuming in a mental health clinic. If paediatricians could handle more of the mild cases as they do during the early years, child guidance clinics would be in a more favourable situation to handle the severe cases."

This study analyses the relative incidence of disorders that bring the patient to the physician within a special community. If the figures had included the numbers within each age-group the vital statistics could have been compared with other groups. As it is we can only say that 100,000 children suffered 420 deaths in 1 year. This gives a mortality rate of 0·42% for the 0–10 age-group. In many of the under-developed communities this mortality rate is up to 20%.]

Cicely D. Williams

DAVIES, T. A. L. & MILLS, Rosemary. **Young Mothers in Singapore.** *Med. J. Malaya.* 1958, June, v. 12, No. 4, 585–601.

The annual report of the Singapore medical department drew attention to the fact that the babies of mothers under the age of 21 years were at greater risk than those of older women.

This article is the result of an investigation of all mothers under the age of 16 years who gave birth to a live baby in Singapore in 1955. Of 228 mothers registered, 50 could not be traced and 72 were actually over 16 years of age at the time of delivery. Of the remaining 106 mothers all but 2 were in good health but 15 of the babies had died. (This gives an infant mortality rate of about double that of the Singapore average.)

There is an interesting account of the reasons and the varying traditions behind these early marriages.

The racial distribution was as follows:—

Mothers under 16	*Infants born*	*Infants died in 1st year*
Malaysian	46	9
Chinese	17	4
Tamil	38	2
Others (Sikh, Pakistani etc.)	5	0

The large number of Malaysians in this group reflects the conservatism of this group.

[The small infant mortality among the Tamils probably indicates not only their willingness to use hospitals and clinics, but also their superior ability in breast feeding.]

Cicely D. Williams

MONTHLY BULL. MINISTRY OF HEALTH & PUB. HEALTH LAB. SERVICE (DIRECTED BY MED. RES. COUNCIL). 1958, Aug., v. 17, 182–91. **An Enquiry into Sudden Death in Infancy.** [An Account of Combined Work of Members of a Steering Committee (BANKS, A. L., Chairman) based on an Interim Report to the Ministry of Health.]

Sudden death in infancy has often been assumed to be due to asphyxia, even without an autopsy or after an inadequate examination. The verdict given to this effect, as was pointed out in a memorandum (1951) for the Ministry of Health, "apart from causing extreme distress to the parents, may lead to recriminations and family upsets, while these stories seem to possess a great attraction for the press, especially if the court is critical". Such publicity might be of value if all these cases were due to mechanical causation, but from observations in "this country and in America and Australia, there is evidence that death may sometimes be due to some other cause such as an acute infection". A case was made out for an organized investigation of the problem on a large scale which was to include a detailed autopsy with histological examinations and also a careful search for infective agents. It was thought originally that there were about 200 sudden deaths in young children in a year in Britain which might be attributed to accidental suffocation but were in fact due to bacterial or viral infection or to the inhalation of food or vomit. It was found, however, that the magnitude of the problem was greater than this and was estimated to amount to over 1,400 deaths in England and Wales in 1955.

An account is given of the formation of a Steering Committee of the Ministry of Health, its membership and the organization of the enquiry, followed by an Interim Report. This report was based on the findings in 81 cases of sudden death in London (64 cases) and in Cambridge (17). Tables set out the histological classification of these cases and it is stated "Amongst these cases where histological examination had demonstrated inflammatory changes in the respiratory tract the naked eye pathology had simulated asphyxia. Only in a minority of cases of sudden death was the cause of death obvious to the naked eye". Other tables give information on bacteriological findings, age and sex distribution and seasonal frequency of sudden deaths in infancy. The social circumstances were also investigated in 79 of the cases and analysed in relation to the histological findings. In the summary it is stated: "It has been found that sudden deaths in children aged two weeks to two years which might have been attributed to suffocation include more than 20 per cent of the mortality in the age-group". The investigation is now proceeding since it has been decided that the enquiry is important.

M. E. Delafield

SIMON, E. L. **Infections in the First Year of Life. A Comparison between Summer- and Winter-Born Infants.** *Med. Officer.* 1958, Aug. 15, v. 100, No. 7, 111–13.

Many surveys of infant morbidity have been made "in this and other countries" and some of the results of these are quoted for comparison with the findings of the survey reported on here which "was undertaken in order to determine whether infants born in the summer suffered less illness due to infection in their first year of life than infants born in the winter". The method of this survey conducted in York was to discover from the mothers of the babies the number of infections—respiratory, gastro-intestinal, skin, specific fevers and miscellaneous—suffered by each infant and other members of the household during the first year of the baby's life. The number of infants included in the survey was about 100 in each of 4 batches, *viz.* born in June and December 1951 and in June and December 1954. Tables set out the number of infections suffered per family and per baby during the year following the birth of summer and winter babies and also particulars of size of family, density of inhabitants per room, social class and period of breast feeding.

Respiratory disease was the most common infection and accounted for 80% of the illness. This figure is higher than that recorded in other surveys, no doubt because colds were included. A slightly lower incidence of infection was noted in the families with winter-born babies than with summer babies. The percentages of children who escaped any infection was 37·4% for winter and 28·3% for summer babies and the percentages suffering 3 or more infections were 26% for the winter and 34% for the summer babies. "Any influence of breast-feeding on the incidence of infection was not demonstrated in this survey."

M. E. Delafield

WALLACE, Helen M., HARTMAN, Evelyn, WECKWERTH, V. & DAVIS, Eunice. **Health Problems of Infants and Preschool Children: Report of a Study.** *Amer. J. Pub. Health.* 1958, Sept., v. 48, No. 9, 1145–52.

The purpose of the study described in this paper was to discover the most frequent types of health problems in infants and pre-school children attending "Well Child Conferences" in Minneapolis. Information was also sought on the question of regularity of attendance which may be useful in planning community health services. The methods of study were: (1) analysis of death certificates in the period 1952–56, and (2) tabulation and analysis of data recorded by physicians at the Well Child Conferences during 3 months. In Minneapolis there are 9 of these institutions, and approximately 3,000 infants and pre-school children a year are seen by the physicians. "There is a means test determining eligibility of attendance at the Well Child Conferences." The service consists of "determination of health status"; advice to parents; immunization against diphtheria, pertussis, tetanus, smallpox and poliomyelitis and Mantoux testing at 4 years of age.

It was found by the study that the major causes of "postneonatal mortality were congenital malformations, pneumonia and influenza, and accidents" and of mortality in "pre-school children were accidents, congenital malformations, pneumonia and influenza, and cancer and leukemia". Numerical details of the causes of mortality are not given. Health problems were found to exist in 37% of the children and had the highest incidence in the age-group 49–60 months and the lowest in the groups 12 months or less and 25–36 months. Tables set out the age distribution of health problems by system (skin, respiratory and cardiovascular systems headed the list), children with reported accidents by age and by type of accident and the general age distribution of the 959 children who were studied.

The data are discussed generally and in relation to the planning of health programmes.

M. E. Delafield

SOLOMONS, B. **The History of Infant Welfare.** *J. Pediatrics.* St. Louis. 1958, Sept., v. 53, No. 3, 360–77. [Numerous refs.]

Health of Nurses, Students and Hospital Staffs

BARR, A. **Hospital Size and Staff Sickness Rates.** *Brit. J. Preventive & Social Med.* 1958, July, v. 12, No. 3, 156–8.

The purpose of the study described in this paper was to examine the association between the size of hospitals and the sickness absence of the hospital nurses. The material of this study was the results of a survey of nurses' sickness and non-sickness absence during the year ending March 31, 1957, recorded in the Hospitals of the United Oxford Hospitals and the Oxford Regional Hospital Board. For the purpose of this study only sickness absence among student nurses was considered. The sickness data were analysed according to the number of available beds at the hospital and to the turnover of patients per bed. From the statistical results which are set out in tables it was found that "There was no evidence to show that the rate of sickness absence was related to the size of the hospital". The discussion is devoted to consideration of the factors which may be responsible for the difference between this finding and the published results of investigations in various industries. For example, in an industrial combine of 90 units (Acton Society Trust, 1954: London) a clear relationship was found between size of unit and morale measured in terms of sick leave, number of accidents and length of time taken to recover from an accident. Other similar findings are quoted and it has been suggested that "As firms grew in size, so the management became more remote and impersonal and, in turn, the worker developed a lack of responsibility towards his job".

M. E. Delafield

Care of Old Persons and the Chronically Ill

AMULREE. **Hospitals and Domiciliary Services.** *Pub. Health.* 1958, Sept., v. 72, No. 6, 203–9.

In this short review there is a clear and valuable outline of the developments following the introduction of the National Health Service in 1948 which brought about the united control of voluntary and municipal hospital services under the Minister of Health. The former municipal hospitals with their large numbers of elderly, bedridden chronic sick were gradually staffed with a more adequate number of doctors and nurses and needful ancillary departments. The standard of treatment began to improve and a large number of their permanent chronic sick inhabitants became fit for discharge to their homes.

Many, however, could not be looked after by relatives at home and hence recourse had to be had to such domiciliary services as were already in existence—those administered by local authorities and those supplied by voluntary organizations. These domiciliary services for which there is an ever-increasing demand are discussed in respect of their nature, the extent to which they are needed and the statutory powers conferred on local authorities to provide special services of various kinds in order to assist in maintaining elderly persons in their homes. In the conclusion the author says " So many of the domiciliary services remain permissive in the extent to which they are developed that often their full benefit is lost. But by means of the full expansions of these services, by close linking of the practitioner and the hospital with these services, forgetting past prejudices and fears, a great deal of useful work can still be done in maintaining as many people as possible happy in their own homes ". *M. E. Delafield*

GEFFEN, D. & TRACY, Susan M. **Welfare Clinic Services for the Ageing.** *Pub. Health.* 1958, Sept., v. 72, No. 6, 210–15.

The St. Pancras Association for the Care of the Aged, an example of voluntary and local government cooperation, has now had 10 years' experience of welfare clinics for old people. The original welfare clinic for old people in the borough was started in 1949 and is not to be confused with the out-patient clinic at St. Pancras Hospital. This welfare scheme is run in conjunction with the chiropody clinic where about 1,000 old people are kept under regular supervision. These old people attend regularly since the clinic is popular because treatment helps to keep them mobile. While waiting for treatment they are seen by the doctor or nurse.

The medical and nursing clinic is described with some account of its work and with examples of the type of case in which the clinic is of particular value. Stress is laid on the value of the welfare clinic in securing by personal interview information on the social state and environment of the old people which will reveal the existence of problems for which some solution may be found. *M. E. Delafield*

CHALKE, H. D., DEWHURST, J. R. & WARD, C. W. **Loss of Sense of Smell in Old People. A Possible Contributory Factor in Accidental Poisoning from Town Gas.** *Pub. Health.* 1958, Sept., v. 72, No. 6, 223–30, 1 fig.

In a previous paper [this *Bulletin,* 1958, v. 33, 6] the results of a preliminary survey of the acuity of the sense of smell in people over 65 years of age as compared with that of younger people were published. These results, included for completeness in the present paper, were that nearly 50% were unable to detect the smell of coal-gas. The tests used in the earlier survey were very simple and it was clear that a more precise method was needed. This paper describes with a diagram the instrument which was devised—an odorimeter which would measure the threshold of olfactory recognition. It was used in the testing of groups of old people in hospital, convalescent home or residential home and also in Old Folks' Clubs. A few younger persons were also tested. The numerical results of the test are set out in tables.

" This investigation has established the probability that about one-third of people over the age of 65 cannot reliably detect town gas by its odour and that the remaining two-thirds are often less sensitive than younger persons—perhaps one-half to one-third as sensitive." The findings, which have an important bearing on the occurrence of accidental gas poisoning, are discussed in relation to the probable magnitude of the risk and the different methods whereby this risk might be minimized. *M. E. Delafield*

Vital Statistics and Epidemiology

KERRIDGE, D. **A New Method of Standardizing Death Rates.** *Brit. J. Preventive & Social Med.* 1958, July, v. 12, No. 3, 154–5.

Two methods are generally used for eliminating age differences in mortality comparisons, the direct and the indirect methods of standardization. The direct method depends upon a knowledge of the age distribution of the population and deaths; and the indirect method depends on the age distribution of the population but the age distribution of the deaths is not necessary. The author proposes a method for use when the age distribution of the deaths and the total population is known, but not the total age distribution. The death rates in the standard population are divided into the number of deaths in each age-group and an expected population found. The sum of the expected populations is compared with the actual population and the resulting ratio gives the standardized index. This method has a large standard error and its use should be avoided if either the direct or indirect method can be used. *W. J. Martin*

KENDALL, N. **Neonatal Mortality in Philadelphia.** *Trans. & Studies of College of Physicians of Philadelphia.* 1958, Aug., v. 26, No. 2, 76–9, 1 fig.

The neonatal mortality in Philadelphia has steadily risen from the lowest level of 20·9 per 1,000 live births in 1951 to 23·1 in 1955. The rates during 1950–55 were consistently above the rates for the whole country and for New York, Chicago and Pennsylvania. The premature birth rate was also above the national average. The percentage of premature births in Philadelphia in 1955 was 7·0 for whites and 14·5 for non-whites. The usual correlation between birth weight and mortality was found. The percentage neonatal death rate was 95 for babies under 1,000 gm., 64 for 1,001 to 1,500 gm., 18 for 1,501 to 2,000 gm. and 3 for 2,000 to 2,500 gm. Babies weighing under 1,000 gm. formed 8% of the premature births and 42% of the neonatal deaths among premature babies. An analysis by the 10 health districts showed that where the neonatal death rate was high the rate for premature births and for illegitimate births was also high.

The author suggests that since the chance of survival increases with increasing period of gestation the obstetrician should attempt to prevent premature labour and prolong the period of gestation. Centres for premature babies should be established where adequate medical and nursing care could be provided. Since the medical facilities are not being used to the fullest extent, and many women had no ante-natal care, a campaign should be started to stress the importance of ante-natal care and health education. *W. J. Martin*

KNOX, G. & MACKINTOSH, Jean. **Post-Neonatal Infant Mortality in Birmingham between 1947 and 1956.** *Brit. J. Preventive & Social Med.* 1958, July, v. 12, No. 3, 131–4, 3 figs.

This paper examines the post-neonatal infant mortality (over 1 month and under 1 year) in the City of Birmingham by rank of birth and age of mother for the period 1950–56.

The post-neonatal infant mortality rate fell from 9·7 per 1,000 live births in 1950 to 7·3 in 1953 and fluctuated slightly around this level in the next 3 years. The average post-neonatal mortality for the whole period, 1950–56, was 8·7 when the mothers were under 25 years, 8·0 when the mothers were 25–29, and 7·4 when the mothers were aged 30 years or more. By order of births it was 5·5 for first births, 7·5 for second, 9·0 for third and 13·1 for fourth births and over. Each age-group of mothers showed the same mortality trend for birth order and each order of birth showed a similar mortality trend for age of mother.

The deaths have been examined in 3 groups according to mother's age and birth order. Most of the fall in the mortality rate in the first years of the period was due to a decrease in deaths from infections, and the death rate from non-infectious conditions fluctuated around a fairly constant level with a slight tendency to increase in the last two years.

The authors conclude that the fall in post-neonatal mortality was due to therapeutic advances in the treatment of infectious diseases and that this period is now ending. *W. J. Martin*

BARR, A. **The Extent of Hospital Sickness.** *Brit. J. Preventive & Social Med.* 1958, Apr., v. 12, No. 2, 61–70, 2 figs. [12 refs.]

"Morbidity studies based on hospital admission rates are complicated because all admissions to a defined group of hospitals rarely come from a defined population and all admissions from a defined population rarely go to a defined group of hospitals." In the present paper there is an account of a general analysis of all hospital admissions of persons living in a defined area. The chosen area with a population (1951 Census) of 672,800—336,300 males and 336,500 females—comprised Reading County Borough, 10 municipal boroughs, 5 urban districts and 16 rural districts spread over 5 counties. A table gives the population of each of these and there is also a map.

Altogether, 77 hospitals (mainly in the North-West and South-West Metropolitan Regional Hospital Boards, the United Oxford Hospitals and the Oxford Regional Hospital Board) took part in the enquiry and provided information about all patients from the selected area admitted during April and May 1956. The information which was given included the address, sex, age of patients and the department of the hospital to which they had been admitted. The results of the analysis are set out in detailed tables which give the geographical distribution of hospital admissions by specialty and sex for each administrative area, the average monthly number of admissions and hospital admission rate per 1,000 of population per month by specialty, age and sex, age standardized admission ratios by specialty and sex and correlation co-efficients between the standardized admission ratios in 4 of the specialties.

These results are fully discussed and summarized with mention of the practical value of a study of this kind. Accurate assessment of illness leads to the best use being made of the available treatment facilities, forms a basis for the planning of hospital developments, gives information for the better analysis of the cost of hospital work in terms of population and is of value in the epidemiological study of sickness against its sociological background. *M. E. Delafield*

MINISTÈRE DE LA SANTÉ PUBLIQUE. Paris. Documents statistiques sur l'épidemiologie des infections typho-paratyphoidiques, de la poliomyélite et des brucelloses en France en 1954 et 1955 [**Statistics on the Epidemiology of Enteric Fever, Poliomyelitis and Brucellosis in France, 1954–5**] [CHASSAGNE, P., with the collaboration of Y. GAIGNOUX]. *Monographie de l'Institut National d'Hygiène No. 15.* 117 pp., illustrated. 1958. Paris (16e): Inst. Nat. Hyg., 3, rue Léon-Bonnat.

This book deals in great detail with the typhoid-paratyphoid fevers, poliomyelitis and the *Brucella* infections.

The incidence of typhoid-paratyphoid fevers in France has been decreasing since the large outbreak in 1949 when the peak in June reached a rate of almost 100 per 100,000 of the population. During 1954 and 1955 the monthly attack rate fluctuated around 10 per 100,000, in 1954 the maximum was 16·8 in February and in 1955 the maximum was 16·7 in September. The actual numbers of notifications for the 3 years 1953–55 were 3,954, 3,953 and 4,537, respectively. The pattern of the regional distribution in 1954 and 1955 was, generally, similar for both years. The departments with the highest attack rates in 1954 were Cher, 38·3 per 100,000, and Rhône, 31·2, and in 1955 the Vosges, 43·4, and Moselle, 38·1. Typing was carried out for 2,156 persons and the infecting organism was *Salmonella typhi* in 775 cases, *Salm. paratyphi B* in 904, *Salm. paratyphi A* in 33, *Salm. paratyphi C* in 8, *Salm. typhi* with *Salm. paratyphi B* in 60, and unclassified in 376 cases. The age distribution of these cases was similar for males and females. The attack rate was highest at ages 5–9 years and then fell steadily throughout life. Paratyphoid B was most common in childhood and early adult life and typhoid from age 35 onwards. The infection was contracted from water in 69% of the cases, shellfish in 15%, from man in 10% and from milk or milk products in 6%. The prognosis was the same for each method of infection. The average duration of fever was 12 days for both sexes. The fatality rate and the relapse rate was largest in the older age-groups. The period since vaccination and type of vaccine used was analysed. The vaccinated group, judged by the case fatality, had an advantage over the non-vaccinated, particularly when the vaccination had been carried out within the last 10 years. It appears that the vaccine diphtheria-tetanus-TAB was superior to TAB alone.

The number of notifications of poliomyelitis declined from 1,843 in 1953 to 1,534 in 1954 and rose to 1,834 in 1955. The peak incidence in 1954 did not occur until November, 7·5 per 100,000, but appeared in August, 10·8 per 100,000, in 1955. The departments with the highest incidence were Morbihan, 17 per 100,000, in 1954 and Corrèze, 32·5 in 1955. The epidemiological study is based on 1,636 cases, about half of the cases reported in the 2 years 1954–55. Males formed 56% of the total and there was a marked male excess at ages over 30 years. The males had a higher fatality rate than the females for all ages, 10% compared with 8%, but up to age 15 the females had about twice the mortality rate of the males. An analysis was made by age and sex for the clinical manifestations in the pre-paralytic stage; the extent, severity and site of paralysis; lumbar puncture and the cerebrospinal fluid. The fatality rate for bulbar poliomyelitis was 82% and for respiratory paralysis 81%. Artificial respiration was used in 150 of the 1,636 cases. An attempt was made to establish the method of infection but useful evidence was only available for 219 patients and of these 91 were thought to have contracted the disease *via* the alimentary tract, 71 from bathing, 25 from possible medical injections, 17 from direct contact, 13 from soil, and 2 *via* a wound. The data were grouped into 3 categories according to whether the case occurred in a local epidemic, an outbreak in a family or as an isolated case. The 3 groups were examined by age and type of paralysis. This analysis gave some interesting but rather inconsistent results, *e.g.* the isolated cases had 23% of the non-paralytic cases and the local epidemics 51%, for respiratory paralysis 25% were from isolated cases and 62% from local outbreaks, for bulbar paralysis 53% were from isolated cases and 42% from local epidemics. The influence of density of population was investigated by grouping the communes into 4 groups by size of population but no deductions can be drawn from this analysis in the absence of the numbers exposed to risk. In the final section of the analysis of poliomyelitis the author contrasts the characteristics which appear in different age-groups.

The numbers of cases of *Brucella* infections notified in France during the 3 years 1953 to 1955 were 997, 967 and 697, respectively. Generally the cases occurred in small local outbreaks and the majority of these were from a relatively small number of departments. The departments with the highest incidence, rate per 100,000, in 1954 and 1955 were Corsica 118 and 48·7, Basse-Alpes 32·1 and 22·6, Hautes-Alpes 25·8 and 11·7, Gard 18·1 and 15·1, Meuse 16·9 and 15·4, Ardèche 16·4 and 6·4. The attack rate for the whole country was 2·2 in 1954 and 1·6 in 1955. The notifications had a summer maximum and mainly affected persons in the working ages, males had a rate of 4 times that of the females. Although the condition gives rise to a long period of incapacity, about one-third of the patients had a febrile condition lasting over 1 month, the fatality rate was low, 1%. In 63 cases the infective agent was identified, 52 were *Brucella melitensis,* 7 *Brucella abortus* and 4 a mixture of the 2. The source of infection among 468 patients was goats 26%, sheep 24%, cattle 27%, mixed 22%. A few persons appeared to have been infected from a human source. Agricultural workers formed the largest occupational group of sufferers. Cutaneous infection occurred in 46%, digestive in 30% and probably a mixture of both in 24% of the patients. The incidents leading to infection have been examined in detail. The clinical symptoms, complications and the methods of treatment are given in detail. *W. J. Martin*

MINISTÈRE DE LA SANTÉ PUBLIQUE. Paris. Pathologie régionale de la France. Vol. I. Régions du Sud et de l'Ouest [**Regional Pathology of France. I. The South and West**] [MAROT, R.]. *Monographie de l'Institut National d'Hygiène No. 16.* 479 pp., numerous illustrations. [Numerous refs.] 1958. Paris (16e): Inst. Nat. Hyg., 3, rue Léon-Bonnat.

Each of the 5 sections in this volume deals with 1 of the regions (Bas-Languedoc Roussillon, Provence, Corsica, Midi Oceanique, Brittany) which comprise the area of France covered in this survey. The epidemiology of infectious diseases forms an important part of this book. The method of presentation is mainly descriptive and very few statistics are introduced in the discussions. Each section commences with a geographical, climatic and social-economic description of the regions studied. The pattern of disease varies between and within the regions. The 3 regions bordering the Mediterranean have some features in common with African experience because of the sea transport between the two countries. In recent years tropical leishmaniasis and kala azar have been introduced into these areas. Malaria appears to be endemic in the large marshy tracts, typhoid and paratyphoid fevers are more common in coastal areas than in the inland districts, most of these infections were due to shellfish, and the incidence of *Brucella* infections is greater in the inland areas. Although an extensive epidemiological survey is given for each of the 5 regions it is only possible to make broad comparisons owing to the lack of the necessary statistics. Corsica would appear to have the most unfavourable experience, the incidence of undulant fever, tuberculosis, typhoid, malaria, *Brucella* infections is high and leishmaniasis has recently been imported. On the other hand the common infectious diseases are less prevalent than on the mainland. In Brittany the incidence of tuberculosis and alcoholism is high, the author suggests that these diseases are correlated and that alcoholism is a very important contributory factor in maintaining the tuberculosis death rate.

A résumé of the principal clinical features and a brief outline of its history in a particular area is given for infectious diseases studied in this book. In addition to maps of the 5 regions, maps of smaller areas are given to illustrate the locality of particular epidemics. For each of the 5 regions a summary is given of the principal epidemiological characteristics. *W. J. Martin*

KALLNER, Gertrude. **The Epidemiological Situation in Israel in 1956.** *Acta Med. Orientalia.* 1957, Sept.–Oct., v. 16, Nos. 9/10, 228–32.

Communicable Diseases

For the bacteriology of these diseases see the section on Bacteriology below.
For those communicable diseases conventionally regarded as tropical, readers are referred to the TROPICAL DISEASES BULLETIN

INFECTIVE DISEASES

In this section the abstracts are arranged as far as possible in the following order:—General; Diphtheria, Whooping Cough, Streptococcal Infections, Staphylococcal Infections, Measles, Mumps; Chickenpox, Smallpox; Influenza and other Respiratory Virus Infections, Pneumonia; Hepatitis, Mononucleosis; Meningitis, Poliomyelitis and other Enteric Virus Infections; Encephalitis; Enteric Fevers.

FISHER, M. W. & MANNING, Mary C. **Studies on the Immunotherapy of Bacterial Infections. I. The Comparative Effectiveness of Human γ-Globulin against Various Bacterial Species in Mice.** *J. Immunology.* 1958, July, v. 81, No. 1, 29–31. [15 refs.]

An intraperitoneal injection of pooled human gamma globulin reduced the mortality rate of mice infected with *Staphylococcus aureus, Pseudomonas aeruginosa* (= *pyocyanea*), *Proteus vulgaris, Escherichia coli, Streptococcus salivarius, Streptococcus pyogenes* or *Str. pneumoniae*. No significant protection was given against infections with *Salmonella typhi-murium*, Group C streptococci, *Pasteurella multocida* or *Klebsiella pneumoniae*. The degree of protection given varied between different strains of the same species and increased with the dose of gamma globulin used. It is suggested that gamma globulin with or without antibiotics might be used to treat severe human bacterial infections. *Sheila McDonald*

ADAMCZYK, J. & KASSUR, B. Dławiec błoniczy w świetle materiału własnego. [**Diphtheritic Croup on the Basis of the Authors' Material**] *Przegląd Epidemiol.* Warsaw. 1958, v. 12, No. 3, 259–69. [28 refs.]

The English summary appended to the paper is as follows:—

"Basing themselves on the material of Infectious Disease Hospital No. 2 of the Warsaw Medical School and the Clinical Department of the State Institute of Hygiene, the authors analyze 496 cases of diphtheritic croup observed from 1953 to 1957.

"The frequency of diphtheritic croup is diminishing in Poland according to post-war data. Diphtheritic croup accounted for 5·5% of all types of diphtheria in Warsaw in 1956–1957. Of 496 ill with diphtheritic croup, 334 (67·3%) were observed in the autumn–winter months and 162 (32·7%) in the spring–summer months. The course of croup is more severe in the autumn–winter period than in the spring–summer months; the percentage of cases calling for tracheotomy or intubation was 37·7% between October and March and only 21% between April and September. 69·9% of the ill children were from one-half to four years old, and 92·3% were under 7. The majority of those ill, 334 (67·3%) were boys. In 1956 and 1957, of the 166 cases of diphtheritic croup, 89 (53·6%) were among those not vaccinated and 53 (31·9%) among those vaccinated and also among 24 (14·5%) children in which no data about vaccinations were available.

"Mortality as a result of diphtheritic croup was 3·8%. Mortality among those sick who needed only conservative treatment was very low—0·59%, and among the group who needed tracheotomy or intubation—10·6%. The percentage of mortality among those ill with primary croup was 1·8%, and among those with secondary croup, 8·1%.

"Of the 496 cases of diphtheritic croup, 335 (67·5%) had primary croup and 161 (32·5%) secondary croup. Local croup was diagnosed among 337 ill (72%), laryngo-tracheal croup among 122 (24·6%) and descendent croup among 17 (3·4%). The low percentage of descendent croup was in a large measure due to the fact that diagnosing this clinical form was based principally on autopsy material."

Adamczyk, J., Rusinowa, Aldona, Wołodko, Teresa & Kucharska, Janina. Wpływ szczepień ochronnych na przebieg kliniczny błonicy. [**The Influence of Vaccination on the Clinical Course of Diphtheria**] *Przegląd Epidemiol.* Warsaw. 1958, v. 12, No. 3, 271–9. [23 refs.]

The English summary appended to the paper is as follows:—

"The authors investigated the influence of anti-diphtheria vaccination on clinical material of 538 ill observed in 1956–1957 in the Clinical Department of the State Institute of Hygiene and Infectious Diseases Hospital No. 2 of the Warsaw Medical School. The results of the clinical analysis show that the course of clinical diphtheria among vaccinated children is milder. The most distinct difference was noted in the group ill with toxic diphtheria and severe cases of croup. Incidence of toxic diphtheria was 3·4 times and severe croup 5·2 times higher among sick non-vaccinated children.

"Complications in the course of diphtheria were more prevalent among those ill who had not been vaccinated: pathological changes of the heart muscle and the kidneys by 3 times, pneumonia by 2·2 times, as diphtheritic paralyses, which was not observed among those ill who had been vaccinated, accounted for 3·2% of the cases among sick non-vaccinated children.

"A large percentage (35·2%) of the cases observed among children between eight and fourteen shows the necessity of conducting compulsory vaccination in this age group.

"Vaccination is one of the principal factors for decreasing mortality due to diphtheria. General mortality based on the above material was 2·6%. Deaths were noted only among sick, unvaccinated and amounted to 6·4% of these cases treated."

Breese, B. B. & Disney, F. A. **Penicillin in the Treatment of Streptococcal Infections. A Comparison of Effectiveness of Five Different Oral and One Parenteral Form.** *New England J. of Med.* 1958, July, 10, v. 259, No. 2, 57–62.

This study was carried out in private practice in Rochester, New York. The patients were children most of whom had acute tonsillitis or pharyngitis, with a few cases of scarlet fever, otitis media and other conditions, while 19% are described simply as "carriers". The authors themselves made cultures from throat swabs and sent the haemolytic streptococci so obtained to a laboratory in Syracuse for grouping and typing.

All patients so infected were treated with penicillin in one of 6 forms. All immediate results were good, but the efficacy of these 6 forms of treatment was compared on the basis of failure to eliminate the streptococcus from the throat (all patients had a further throat culture at least 11 days after the onset) and of the frequency of recurrence due either to the same or (often) a different type of streptococcus. By each of these criteria the most effective treatment was a single injection of 600,000 units of benzathine penicillin G. The other forms of treatment were oral, continued for 10 days, and consisted of administering total amounts varying from 5 to 8 million units. In descending order of efficacy in preventing recurrence of the original infection, these forms of penicillin were penicillin G with probenecid in suspension, penicillin V, penicillin G with probenecid in tablets, benzathine penicillin [said in the text to have been in tablet form, but described in a footnote as a suspension], and penicillin G in buffered tablets. The 2 preparations containing probenecid frequently caused skin rashes. The only disadvantages of the single injection treatment were the "psychological trauma" engendered by the "shot" and some painful local reactions.

Other merits discussed in relation to oral preparations are palatability and price. *L. P. Garrod*

Barber, Mary & Dutton, A. A. C. **Antibiotic-Resistant Staphylococcal Outbreaks in a Medical and a Surgical Ward.** *Lancet.* 1958, July 12, 64–8. [23 refs.]

During routine investigations carried out in a medical ward, 3 patients were found to be nasal carriers of an erythromycin-resistant staphylococcus, and similar staphylococci were found on blankets and curtains; these strains were all of one phage type. It seemed likely that the spread of the strain derived from a patient with an infected generalized eczema of the leg. The staphylococcus disappeared after discharge of the infected patient from whom the strain derived, and treatment of the other 2 with neomycin-bacitracin cream, and disinfection of blankets, curtains, etc.

The second outbreak, in a surgical ward, was due to a staphylococcus of phage type 80. There were 11 infections, several severe and 1 a fatal post-operative pneumonia. The source of this outbreak seemed to be a patient who was admitted to the ward with multiple septic spots and boils. Staphylococci of type 80 were isolated from blankets and curtains, from the air and from the nose of the ward sister. Isolation of the first case, treatment of the sister's nose with antibiotic cream, and disinfection of bedding failed to control spread of infection. Eventually all the patients were discharged from the ward, which was then sprayed with Cetrimide, and bedding was disinfected with a quaternary ammonium disinfectant, Arquad.

R. E. O. Williams

NESTORESCO, N., POPOVICI, Marcella, PALADE, Constanța, NOVAC, Stella, ALEXENCO, Ecaterina, CHEPTEA, Aurica, COCIAȘU, Ioana & STOICA, Aurelia. Recherches sur les relations épidémiologiques et cliniques des infections staphylococciques dans un hôpital d'enfants. [**Investigations into the Clinical and Epidemiological Relations of Staphylococcal Infections in a Children's Hospital**] *Arch. Roumaines Path. Expér. et Microbiol.* 1957, Dec., v. 16, No. 4, 507–15. [12 refs.]

Of 30 infants admitted to hospital with staphylococcal disease, 47% were infected with staphylococci of phage-type 80; they had been born in 2 maternity hospitals where many carriers of this type were known to be present. Many of the infected children developed severe lung lesions.

15 of 16 children [basis of selection not stated] admitted to hospital with non-staphylococcal disease or with infections due to staphylococci of other types, developed type-80 infections in hospital. In previous studies in the surgical service the staphylococcal infections were predominantly due to strains of phage group III, and not to type 80. *R. E. O. Williams*

MANOLIU, N., BUSTEA, C., BRĂILOIU, A. & STEFANESCO, V. Étude d'une épidémie au staphylocoque dans une maternité et dans une section de nouveaux-nés. [**Study of a Staphylococcal Epidemic in a Maternity Unit and in a Newborn Department**] *Arch. Roumaines Path. Expér. et Microbiol.* 1957, Dec., v. 16, No. 4, 609–26, 1 diagram. [15 refs.]

During the period October 1955–November 1956, 41% of 723 new-born infants in a hospital in Rumania developed some infection, as did 22% of 730 mothers. The epidemic developed gradually over the period, lesions in infants appearing before lesions in the mothers. 91% of the staphylococci from 27 babies and 27 mothers were of phage-type 80. 93% of the type-80 strains were resistant to penicillin, 90% were resistant to streptomycin and 83% to chloramphenicol; only 46% were aureomycin-resistant [a much lower proportion than reported from most type-80 outbreaks]. Of 34 members of the staff, 4 were persistent and 3 transient carriers of type 80.

Two attempts were made to control the epidemic: by closing the ward, thorough disinfection, and education of staff. Neither had any marked or prolonged effect.

R. E. O. Williams

CHENG, Wu-Fei & LIU, Tzu-Yi. **Incidence of Antibiotic Resistant Staphylococci in a Children's Hospital.** *Chinese Med. J.* Peking. 1958, June, v. 76, No. 6, 574–80.

88 strains of staphylococci isolated from the throat, and 68 strains from various other sites from patients of the Tientsin Children's Hospital in 1957 were examined for coagulase production and antibiotic resistance. 142 strains were coagulase positive. Of the total of 156 strains, 74% were resistant to penicillin, 60% to streptomycin, 89% to Syntomycin and 46% to chlortetracycline. Resistance was commonest in the strains isolated from patients who had been in hospital for more than 3 days. Of 150 members of the hospital staff, 20 harboured staphylococci [presumably coagulase-positive or negative] resistant to penicillin and 44 had chlortetracycline-resistant strains.

R. E. O. Williams

SMITH, R. T. **The Role of a Chronic Carrier in an Epidemic of Staphylococcal Disease in a Newborn Nursery.** *J. Dis. Children.* Chicago. 1958, May, v. 95, No. 5, 461–8, 1 fig. [15 refs.]

In June 1956 there was a sudden increase in the number of staphylococcal infections observed in a maternity unit in Minneapolis. The type of the epidemic staphylococcus proved to be 42B/47C/44A/52/80/81[=" 80 "]. Over the 3-month period, June–September, 117 of 981 babies developed some staphylococcal lesion, and 24 mothers had breast abscesses. The nursery was overcrowded at the time and working under unusual pressure, but the origin of the epidemic seemed to be a nurse who was a chronic carrier of the epidemic type and had chronic sinusitis. At the height of the epidemic she developed several paronychias and pustular lesions of hair follicles in the perineum, leading to an abscess in the buttock. This was incised without her ceasing work in the delivery room or nursery. When, however, her condition was discovered and she ceased work, new cases of infection stopped promptly. They did not recommence until she was returned to duty in November under the mistaken impression that she had become free from the infection. At this time hexachlorophane bathing of the infants was started and infections ceased despite the continued presence of the carrier.

R. E. O. Williams

CALVY, G. L. **Stalking the** *Staphylococcus.* **A Report of a Continuing Naval Action.** *New England J. of Med.* 1958, Sept. 11, v. 259, No. 11, 532–4, 1 fig.

The death from staphylococcal pneumonia of a staff hospitalman in a naval hospital in St. Albans, New

York, led to the mobilization of "Task Force *Staphylococcus*", comprising a Board to control the issue of antibiotics, a pneumonia team keeping telephone watch, and an epidemiology centre for surveillance and general advice. Among the epidemiological factors recognized as leading to the prevalence of the staphylococcus were "lost" concepts of perfect technique, abuse of antibiotics, and a sophisticated staphylococcus. The remedial measures could mostly be summed up as, "Return to old, established principles", with up-to-date disinfectants; the doctors carried detergent bottles "as symbols of crusade for cleanliness".

Of 30 patients with staphylococcal pneumonia, including 16 post-influenzal, admitted during 1957, only 1 died. Since the influenza epidemic the incidence of staphylococcal infections has been less than half that prevailing at the start of this crusade. [Curiously, in such a naval context, the enemy is said now to have gone "underground".] *R. E. O. Williams*

Šebek, V., Schubert, J. & Johanovký, J. Možnosti imunologické prevence stafylokokových nákaz matek a novorozenců. II. Vliv aktivní a pasivní imunisace na nemocnost novorozenců. **[Possibilities of Immunological Prevention of** ***Staphylococcus*** **Infection of Mothers and Newborns]** *Časopis Lékařů Českých.* Prague. 1958, May 12, v. 97, No. 19, 583–7. [26 refs.] English summary.

In a continuation of previous work [this *Bulletin*, 1957, v. 32, 403] on the prevention of staphylococcal infections in mothers and their infants, active immunization with staphylococcal toxoid absorbed on aluminium hydroxide was carried out on 145 infants on the first day of life, and 186 infants were subjected to passive immunization by inoculation of the mothers during pregnancy. The infants were observed for the occurrence of staphylococcal infections during the first 2 months of life, and similar observations were carried out on a control group of 603 unimmunized infants. The incidence of staphylococcal infections was 15·9% in the immunized and 22·6% in the control group. There was no correlation between the incidence of staphylococcal infection and the titre of antitoxin in the cord blood, and passive transfer of antitoxin was evidently ineffective, but there was a marked negative correlation between incidence and antileucocidin titre, and the incidence of staphylococcal infections other than mild forms was reduced to one-half by passive immunization. *D. J. Bauer*

Adams, J. M., Imagawa, D. T., Chadwick, D. L., Gates, Emily H. & Siem, R. A. **Relationship of Measles and Distemper.** *J. Dis. Children.* Chicago. 1958, June, v. 95, No. 6, 601–8, 5 figs. [32 refs.]

An account is given of the histological appearances in the lungs of 2 children aged 9 months and 5½ years who died of measles complicated by intestinal pneumonia. The interstitial tissues were infiltrated with monocytes, there was proliferation of the alveolar epithelium and giant cells containing intranuclear and cytoplasmic inclusions were present in the alveoli. The resemblance between these findings and those seen in animals infected with distemper virus is pointed out. Giant cells of similar appearance were observed in pharyngeal smears from patients in the initial stage of measles and in ferrets infected with distemper virus. The typical cytopathogenic effect produced by measles virus in HeLa cell cultures could be neutralized by serum from ferrets immune to distemper. 8 of 20 ferrets immunized with measles virus survived challenge with distemper virus, whereas only 1 of the unimmunized animals survived the challenge. Measles antisera neutralized 300 LD50 of mouse-adapted distemper virus in neutralization tests in infant mice. *D. J. Bauer*

Roberts, G. B. S. & Bain, A. D. **The Pathology of Measles.** *J. Path. & Bact.* 1958, July, v. 76, No. 1, 111–18, 9 figs. on 3 pls. [24 refs.]

It happened that 3 children died from some other disease on the 13th, 10th and 16th days respectively, after exposure to measles infection. The first showed Koplik's spots, the second no specific signs and the third a measles rash of 3 days duration. Lesions specifically attributable to measles were:

(1) Koplik's spots (Case 1). These were shallow ulcers with scanty round-cell infiltration; there was no vascular dilatation around the ducts of submucous glands. In the epithelium, cells had divided actively but failed to separate, so that they became arranged in small clumps or giant-cells, without inclusion bodies. "It is suggested that this is the primary abnormality in the epithelium and that this abnormality renders it more liable to damage by trauma"—hence the localization of the spots near the teeth.

(2) Swelling of lymphoid tissues (all cases) and the presence of Warthin-Finkeldey giant cells containing 10–100 nuclei. No inclusion bodies were found in these, but acidophilic inclusions were present (Case 1) in the endothelium of the smaller splenic vessels.

(3) Giant-cell pneumonitis (Case 1 only). Long flattened cellular masses with their constituent nuclei arranged in a row appeared to originate from the alveolar epithelium; they contained cytoplasmic acidophilic inclusions of 1 to 10μ in diameter. "It seems probable that a giant-cell pneumonitis is a common but not constant occurrence in measles", and further that "the giant-cell reaction in the lungs is morphological evidence of viral infection of the lower respiratory tract, which may well weaken the resistance to secondary bacterial infection, after which the giant-cell pneumonia rapidly disappears". *Alan B. Raper*

Papp, Carola. Vues nouvelles sur l'immunologie de la rougeole. (Communication préliminaire.) **[New Views on the Immunology of Measles]** Reprinted from *Arch. Françaises de Pediatrie.* 1957, v. 14, No. 10, 2 pp.

Professor Carola Papp of Budapest has in recent years produced strong evidence that the portal of entry of certain virus infections, notably measles, is solely across the intact conjunctiva. This new knowledge has resulted in 2 important new modes of prophylaxis: (1) the instillation of a drop of convalescent serum in both eyes of a susceptible exposed person, within some 12 hours of exposure to the infection, and (2) the method explained below. Neither of these methods can, however, completely solve the problem of measles in the community. That could only be done by the general adoption of active immunization by means of a virus vaccine.

The second of the new methods was suggested by the results of certain controlled experiments which Professor Papp carried out some time ago. It is simple and surprisingly efficacious; 8–15 cc. of 8% sterile gelatin are injected intramuscularly into the non-immune person on the 2nd, 3rd or even the 4th day of incubation of measles, and this is repeated 24–48 hours later. The virus infection then proceeds during the remainder of the incubation period, with the production of virus antibodies and resulting immunity, but the rash and other clinical symptoms of the disease do not appear. The action of the gelatin is to suppress overt symptoms, apparently through some kind of sensitivity-blocking mechanism of an allergic nature. Some 170 children treated in this way during the last 7 years still remain immune to measles. The dosage of both injections is 6–9 cc. under 12 months of age, and 10–12 cc. for children over a year old. In most cases there is no visible reaction, but occasionally the temperature rises slightly; there is rarely any pain at the site of injection, and neither infiltration, nor abscess formation. Fever and pain, if present, disappear in 24 hours.

This work has been carried out in Budapest and Miskolc, and is proceeding also in Novi Sad, Jugoslavia. The results have been 100% successful among the private patients treated, probably because among these the exact time of infection was known. It has been made clear that immunity can be acquired without any symptoms of illness, which, indeed, are of no advantage to the patient and merely serve to spread the infection. The mechanism of the method cannot be fully explained until the patho-mechanism of measles is known. Those details which are still unknown will be set out in an article to be published in *Revue d'Immunologie*. *H. Stanley Banks*

OVERMAN, J. R. **Viremia in Human Mumps Virus Infections.** *Arch. Intern. Med.* 1958, Sept., v. 102, No. 3, 354–6, 1 fig.

"Mumps virus has been demonstrated in the serum of two patients early in the course of clinical mumps virus infections at a time when serum antibody to mumps virus had not yet appeared."

FAZEKAS DE ST. GROTH, S., GRAHAM, Doris M. & JACK, I. **The Serology of Mumps Infections. I. A New Source of Antigen and a Simplified Complement Fixation Test.** *J. Lab. & Clin. Med.* 1958, June, v. 51, No. 6, 883–96, 6 figs. [10 refs.]

In preliminary experiments in which the titre of S antigen was determined in the fluids and tissues of chick embryos infected with the Enders strain of mumps virus by various routes, the highest titres were found in the lungs after infection by the amniotic route. The results of a more detailed investigation of the conditions required for obtaining maximum titres of S antigen (up to 400) in the lungs showed that the optimum time of inoculation was between the 11th and 13th days of incubation, and that the optimum duration of incubation was 5–7 days. The lung extracts did not contain V antigen, and could therefore be used as a source of S antigen without preliminary centrifugation or red cell absorption. The maximum titre of S antigen in the lungs was not greatly affected by variation of the infective dose between 0·5 and 7·5 log units, but with the larger doses many embryos died, and a dose of 10^2–10^4 ID50 was found most satisfactory in practice. Further results obtained with a strain of mumps virus (3DB) isolated in Melbourne were generally similar, except that no S antigen was formed in the lungs when the embryos were younger than 10 days at the time of infection. The technique of the complement-fixation test with embryo lung S antigen is described in detail. *D. J. Bauer*

TUCKER, D. N. & OVERMAN, J. R. **Size of Mumps Skin Test Reactions.** *J. Lab. & Clin. Med.* 1958, Sept., v. 52, No. 3, 446–8.

Skin tests with an egg-grown mumps virus antigen were performed in 38 young medical students and the results were correlated with clinical history and level of mumps antibodies. The value of the skin test was found to depend on the criterion used in reading the results. When a minimum reaction size of 15 mm. was required for a positive result, no false positive reactions were observed but false negative tests were obtained in 7 of 28 subjects. Reduction of the above criterion of minimum reaction size increased the number of false positives without a significant effect on the proportion of false negatives. Most of the subjects with false negative tests gave no history of mumps, suggesting a small degree of skin sensitization in inapparent infections. *H. G. Pereira*

ADONAJŁO, Aniela. Epidemiologiczna charakterystyka krztuśca w Leningradzie w latach 1953–1955. [**Epidemiological Features of Whooping Cough in Leningrad in 1953–1955**] *Przegląd Epidemiol.* Warsaw. 1958, v. 12, No. 3, 281–94, 1 fig.

The English summary appended to the paper is as follows:—

"The main reason for conducting this investigation was to reveal the epidemiological features of whooping cough in a big city and to establish the origin of high incidence of it in organized children's institutions (nurseries. kindergardens, children's homes). The work consists of a statistical section covering incidence, mortality, according to age groups, seasonal appearance. The author's observation covered 22 children's institutions and 103 private flats in which cases of whooping cough were reported. Bacteriological and serological investigations were carried out in the earliest period of the illness as well as in abortive cases of whooping cough. 2,095 children were under observation in the children's institutions mentioned. 28 epidemic outbreaks were observed as well as 8 instances where the introducing of the infection caused no epidemic in the establishment. 513 children were under observation in private flats. 454 bacteriological and 162 serological tests were conducted.

"Of the total number of children in the establishments who had previously not been ill with whooping cough and who came into contact with persons ill with whooping cough, 44,6% fell sick. In private flats only 30% of such children fell sick. Applying bacteriological examinations early, allowed lowering the number of consecutive cases up to half. During the catarrhal stage of whooping cough, 94% positive results in bacteriological examinations were obtained, whereas, up to the ninth day of illness, the results were 100% positive. The following reasons for the high incidence in the children's institutions were established: not applying methods of early bacteriological diagnosis, not adhering to sanitary and anti-epidemic measures, and unsatisfactory sanitary conditions in the institutions mentioned.

"On the basis of observing children in prolonged contact with whooping cough, it was established that none of them, even those being in closest contact with a sick person, fell sick later than on the 22nd day, counting from the beginning of the illness of the children who were the source of infection. This data allowed eventually to shorten the quarantine period by ten days in healthy children coming in contact with whooping cough cases (up to this time a 40 day quarantine was compulsory)."

PURPURA, G. Un episodio epidemico di vaiolo a Napoli. [**An Epidemic Episode of Smallpox in Naples**] *Ann. d. San. Pubblica.* Rome. 1958, May–June, v. 19, No. 3, 545–68, 5 figs. [13 refs.] English summary (6 lines).

This is an interesting and instructive account of events which followed the arrival in Naples of an American traveller from India who stayed at 2 hotels in the city, became ill and was then admitted to a private clinic and subsequently to the isolation hospital with a maculo-papular rash which became pustular. A cytopathogenic virus belonging to the pock group was isolated from the pustules and crusts, but was negative when tested on monkeys and rabbits and by complement-fixation. Guarnieri bodies were seen and the diagnosis was discrete smallpox. Although the patient's wife who accompanied him did not develop the disease, 3 primary and 3 secondary cases occurred, 1 of the primary cases—in a doctor at the isolation hospital—was fatal, the patient becoming ill 11 days after first attending to the original patient. He died on the 8th day, of clinical haemorrhagic smallpox; virus isolation was negative, but the disease was definitely diagnosed by histopathology. This patient had been vaccinated in infancy and re-vaccinated 3 years before, and again on first attending the original patient and twice subsequently. All attempts were negative. Among the secondary cases was the doctor's father who had been re-vaccinated 13 years previously but who refused revaccination on this occasion because of diabetes. He had an attenuated smallpox rash only. Another doctor was also among the secondary cases. The haemorrhagic manifestations in the fatal case are discussed at length and are ascribed to some form of haemorrhagic diathesis which reacts with various infective conditions in an allergic manner.

Although numerous cases of varicella were occurring in the city at the time the author is satisfied on epidemiological, laboratory and clinical grounds of the accuracy of diagnosis. As a result extensive measures were taken to deal with a possible widespread epidemic. They included the compulsory quarantine after previous revaccination of all the nursing staff of the isolation hospital, compulsory vaccination of the staffs of both hotels, surveillance of the families of the contacts at the hotels and clinic for 21 days and finally mass vaccination of the people of Naples and the surrounding area. This was so extensive that in less than 1 month more than 1 million persons were vaccinated. The sale of lymph was permitted from chemist's shops though none had any refrigerator or ice box.

The author recommends that re-vaccination should be performed every 3 years on doctors, health inspectors, health visitors and nurses, and all engaged in public cleansing (including refuse disposal) and all forms of transport. He considers that surveillance of direct contacts is not enough and that some form of compulsion is required. *W. K. Dunscombe*

HERRLICH, A. Variola. Eindrücke von einer Epidemie in Bombay im Jahre 1958. [**Variola: Observations in an Epidemic in Bombay in 1958**] *Deut. med. Woch.* 1958, Aug. 22, v. 83, No. 34, 1426–8, 1436, 1441.

The main purpose of this paper was to contrast the relative mildness of smallpox in vaccinated persons (varioloid) as it occurred recently in Hamburg with the classical severity of the disease in India and Pakistan in the epidemic year 1958. The author had the opportunity of seeing cases of the disease in this epidemic in Bombay in the spring of 1958 and, as he says, his previous experiences pale after his observations of variola in India. In his 4 weeks' stay he was able, thanks to the Public Health Service, to examine more than 500 patients in the City Fever Hospital and to obtain specimens of pustular contents, blood and samples of liver, spleen and lung. These specimens, now transported to Germany in continuous refrigeration, will be reported on in a later publication.

There are clinical descriptions of some of the types of the disease which were seen with particular reference to the frequency of an early as well as a secondary haemorrhagic state. There are 12 photographs (pp. 1436 and 1441) to illustrate some cases of particular interest. Reference is made to antibiotic therapy which, though ineffective against the viral infection would, in the author's opinion, be most valuable in smallpox in Africa and Asia since the incidence of secondary bacterial invasion in the Bombay epidemic was extremely high. Unfortunately it was not possible to administer antibiotics to any large extent.

Accurate figures of the case mortality rate of smallpox in the Province of Bombay could not be obtained but in an analysis of 958 cases the case mortality was 21·9% which is about the average for India as a whole. Age and sex analysis of these 958 cases shows how wide the variation is, since in adult women the case mortality was 25·9% as compared with 12·7% for adult men, and it is noted that a high proportion of certain groups of male workers in the city of Bombay are relatively well immunized against smallpox. Children, on the other hand, have been but little protected and in female children the case mortality was 77·4% and in male children 51·4%.

M. E. Delafield

COCKSHOTT, P. & MACGREGOR, M. **Osteomyelitis Variolosa.** *Quart. J. Med.* (n.s.) 1958, July, v. 27, No. 107, 369–87, 11 figs. on 3 pls. [46 refs.]

The authors review the literature. Two types of bone and joint involvement in smallpox have been described: pyogenic osteomyelitis and arthritis, and "osteomyelitis variolosa". They then report 15 examples of this latter condition which they encountered during an epidemic of smallpox in Nigeria in 1957. These cases all occurred in children between the ages of 7 months and 7 years (with the exception of one youth aged 17 years): all the patients were unvaccinated (a few had been vaccinated in the incubation period) but in spite of this all but one survived. No case of septic bone or joint disease was seen.

From their study of the literature, and from their own observations, the authors draw the following conclusions.

Osteomyelitis variolosa usually declares itself as an arthritis; nevertheless, accompanying bone disease is invariably present, and is the basic lesion. Children are affected almost exclusively. The complication occurs as readily after mild as after severe smallpox, and usually after an interval of 1 to 6 weeks from the onset of smallpox. Joints, most commonly the elbows, are frequently involved symmetrically—with swelling, local tenderness and pain on movement. Moderate effusions may occur, and larger effusions have been known to lead to sinus formation. In the present series effusions were sterile except in 2 instances: radius was affected 28 times, ulna 26 times, humerus 19 times, metatarsals 7 times, fibula and os calcis 6 times, tibia and talus 5 times, and metacarpals 3 times. [Radiological findings are illustrated in a series of plates.]

The authors' view is that the primary site of bone invasion by the virus of smallpox is the metaphysis which, in the stage of active growth in early childhood, is especially vulnerable. It is significant that this lesion is never seen after adolescence, a fact which suggests that the proliferating cartilage-cells of the epiphyseal junction are attacked.

Complete recovery, or alternatively considerable deformity, may result.

[This is an important and comprehensive account of a condition which has received little notice—at least for many years. It seems strange that although the present authors consider that the complication affects from 2 to 5% of children attacked by smallpox in an epidemic, it has apparently not been encountered among the many thousands of cases of smallpox (chiefly variola minor) which have been recorded in England during the last 40 years.] *J. Pickford Marsden*

PEIRCE, E. R., MELVILLE, F. S., DOWNIE, A. W. & DUCKWORTH, Marjorie J. **Antivaccinal Gamma-Globulin in Smallpox Prophylaxis.** *Lancet.* 1958, Sept. 20, 635–8, 4 figs.

[The title is misleading. In fact, this paper gives a tantalizingly incomplete history of the outbreak of smallpox on Merseyside during March–May 1958.]

Infection arrived on March 19 in a Lascar who had been ill since March 9 and who had "a severe confluent pustular eruption". He was removed from the ship and admitted to the local smallpox hospital.

Family L. lived in a row of houses 400 yards from the hospital. The son, T. L., an unvaccinated boy aged 2 years, was taken out by his mother on March 25 and visited a barber's shop. Before this date he had been confined to his home for over a fortnight with mumps. On April 6 this boy became ill, and a rash began to appear on April 9, but not until April 14 was he diagnosed as a case of smallpox and removed to the hospital. This boy had a severe attack, but recovered.

Mr. L., the boy's father (vaccinated in infancy and during the war), and Mrs. L. (vaccinated in infancy and in 1946), were re-vaccinated on April 14; both showed "accelerated reactions maximal about the fourth day" and remained well.

J. L. (sister) aged 6 was primarily vaccinated on April 14. On April 15 she was given 1·5 gm. immune gamma globulin, and a further 0·5 gm. on the following day. On the 8th day following vaccination she had "a small vesicle surrounded by a well-marked areola, but next day this was much less and a central scab had formed". After a few days' fever (21–25 April) this child developed a very discrete rash (some 13 lesions in all) which ran a highly modified course, but from which smallpox virus was recovered.

Mrs. K. (grandmother) aged 73, vaccinated in infancy only, was re-vaccinated on 14 April and given 1·0 gm. of the gamma globulin on the following day. Vaccination here ran a typical primary course. On April 23 she started to develop what became a widespread erythematous rash. 2 days later the first signs of a discrete focal rash (some 30–40 lesions) appeared. From these virus was recovered.

On May 17 a Mr. G., aged 54, was admitted to a general hospital, but within a few hours was removed to the smallpox hospital where he died 3 days later of haemorrhagic smallpox. 9 of his hitherto unvaccinated contacts were given gamma globulin; none developed smallpox. This man's wife had visited the home of family L. on April 14 before the little boy was removed to hospital. She had been vaccinated in infancy: re-vaccination on April 15 produced "a good slightly accelerated primary take which left two good scars". There is some doubt about the time of onset of her smallpox illness, which escaped detection until May 18. A few old crusting lesions from which virus was removed were then apparent.

While it is difficult to assess the prophylactic value of gamma globulin in smallpox contacts without large planned field trials, the extreme mildness of attack in 2 of the cases recorded here does suggest perhaps more than the possibility that this had been determined, at least partly, by the gamma globulin given on the day after vaccination. [But, if this is so, it would have been instructive to have had Professor Downie's explanation of why the passive antibodies failed to modify also the course of vaccinia in the case of Mrs. K.]

J. Pickford Marsden

CROSS, R. M., KAPLAN, C. & MCCLEAN, D. **Studies with Dried and Glycerinated Smallpox Vaccines of Full and Diminished Potencies.** *Bull. World Health Organization.* Geneva. 1958, v. 19, No. 1, 123–8.

"In a further vaccination and laboratory study with two dried smallpox vaccines (designated 'P' and 'Q') and one glycerinated vaccine, the potency of samples of each vaccine was deliberately lowered by exposure to heat. Groups of volunteers were vaccinated with the fully potent vaccines and with those of reduced potency. All subjects who developed a vesicular response were challenged one year later by revaccination with a potent vaccine, and the results obtained in the different groups were compared. No significant variation could be detected in the response of the different groups to the challenge vaccination. These findings indicate that if vesiculation is obtained with a vaccine, even though potency has been reduced to a point where it produces less than 50% successful primary vaccinations, satisfactory protection will result one year later. It also appears that successful vaccination with a dried vaccine confers as good immunity as that obtained from glycerinated lymph. Vaccines with a pock count of 10^6 infective units per millilitre will produce about 40% successes in primary vaccination."

ESPMARK, A. Vaccin och vaccination mot smittkoppor. [**Vaccination against Smallpox**] *Svenska Läkartidningen.* 1958, Oct. 3, v. 55, No. 40, 2746–66, 4 figs. [34 refs.]

During the past 18 months increasing use has been made in Sweden of plastic vaccine containers designed so as to facilitate the technique of vaccination and promote accuracy of dosage. Comparative tests have been carried out with the scarification and multiple-pressure techniques of vaccination to determine their relative values. SJÖBERG in Sweden applied these methods in 1954 simultaneously to some 230 persons with success in 74·5% after scarification and 97·1% after multiple-pressure. In 1958 (personal communication) LÖNBERG vaccinated 183 recruits simultaneously by the two methods, getting a response in 74% after scarification and 83% after multiple-pressure.

Espmark puts the risk of post-vaccinal encephalitis in Sweden at about 1 in 50,000 and he finds it much smaller than in certain other countries such as Holland and Austria. During the decade 1948–57 there were 25 notifications of this ailment in Sweden, with only 2 deaths, whereas its mortality is usually put at about 40%. It should be noted that in Sweden as from January 1, 1959, parents will be allowed to dispense with vaccination for their children more easily than heretofore although it will continue to be compulsory.

Claude Lillingston

FOERSTER, D. W. & SCOTT, L. V. **Isolation of Herpes-Simplex Virus from a Patient with Erythema Multiforme Exudativum (Stevens-Johnson Syndrome).** *New England J. of Med.* 1958, Sept. 4, v. 259, No. 10, 473–5. [20 refs.]

The clinical course of a case of Stevens-Johnson syndrome is described in detail. A virus identified as herpes simplex was isolated from vesicle fluid by inoculation on to the chorio-allantoic membrane of fertile eggs. Complement-fixation tests performed with acute and convalescent sera showed a rise in antibody against herpes simplex antigen. The literature on the aetiology of Stevens-Johnson syndrome is reviewed and evidence for the association of this syndrome with herpes simplex virus is presented. *H. G. Pereira*

PROC. ROY. SOC. MED. 1958, July, v. 51, No. 7, 469–74 (Sect. Laryngol. 5–10) [18 refs.] **Discussion on Virus Infections of the Upper Respiratory Tract** [ANDREWES, C. H.; STUART-HARRIS, C. H.; JAMES, J. A.; MACBETH, R.; ALLINSON, S. W.].

The aetiology of virus infections of the upper respiratory tract is discussed by Dr. C. H. Andrewes, and laboratory methods for the isolation and identification of 9 different viruses are listed. The viruses mentioned include influenza A, B and C, Sendai virus, croup-associated virus, adenoviruses, chimpanzee viruses, 2060 and JH viruses and finally the common cold. The question of whether the common cold is caused by a single or by several different viruses is left unsettled. Evidence for the importance of each of the viruses listed on the aetiology of human infections is briefly reviewed. Professor Stuart-Harris reviews the pathology and symptomatology of acute respiratory diseases. The syndromes described include influenza, the common cold, atypical pneumonia and febrile catarrh. The association of each of these syndromes with known viruses is discussed. The fact that a considerable proportion of acute respiratory infections remain without a known aetiology is pointed out and comments are made on the possible importance of bacteria and herpes simplex virus in the pathology of respiratory diseases.

H. G. Pereira

MCDONALD, J. C., WILSON, J. S., THORBURN, W. B., HOLLAND, W. W. & ANDREWS, B. E. **Acute Respiratory Disease in the R.A.F., 1955–7.** *Brit. Med. J.* 1958, Sept. 20, 721–4, 2 figs. [12 refs.]

The importance of influenza virus and of adenoviruses in the cause of acute respiratory infections among recruits and non-recruit populations was investigated in a number of Royal Air Force stations in

Britain. The study was conducted during the winter months of 1955–6 and 1956–7. The incidence and cause of respiratory disease among recruits, non-recruits and apprentices or boy entrants, were based on the analysis of respiratory illness admission rates and on laboratory diagnostic methods.

The incidence of respiratory illnesses requiring admission to sick-quarters was considerably higher in recruit units than in other stations. Serological investigations carried out in 1955–6 showed that adenoviruses were responsible for at least half the respiratory disease admissions in recruit units and for a much lower proportion of admissions in non-recruit and boy entrants stations. In 1956–7 adenoviruses were almost completely absent from recruit units and were responsible for a very small number of admissions in other types of units. In both winters influenza virus A was shown to be the cause of a high proportion of respiratory illnesses both in recruit and in non-recruit populations. Acute respiratory illness was shown to be an important cause of invaliding from the Service.

The correlation between clinical findings and serological results is presented. The possible explanations for the high susceptibility of recruits to adenovirus infections are discussed.

[For an earlier study see this *Bulletin*, 1956, v. 31, 886.] *H. G. Pereira*

Loosli, C. G., Hamre, Dorothy & Warner, O. **Epidemic Asian A Influenza in Naval Recruits.** *Proc. Soc. Exper. Biol. & Med.* 1958, July, v. 98, No. 3, 589–92, 2 figs.

An outbreak of Asian influenza was observed among recruits in a United States naval training centre, starting in early June 1957, reaching a peak later in the same month and rapidly declining. Approximately 75% of the population under study were treated for acute respiratory infection during the period from June 8 to July 5. Virus isolation and serological studies revealed that the majority of infections were caused by Asian influenza virus but a few cases showed evidence of infection by influenza B and adenovirus. Serological tests in pairs of sera collected before, and 4 weeks after, the onset of the outbreak showed antibody rises for Asian influenza virus in 95% of patients admitted to the dispensary for respiratory infections and in 76% in persons not admitted. This finding, together with the high attack rate observed during the initial part of the epidemic, points to the lack of immunity to Asian influenza virus in the population studied. *H. G. Pereira*

Mulder, J., Masurel, N. & Hers, J. F. P. De Aziatische-influenza-pandemie van 1957. [**The Asian Influenza Pandemic**] *Nederl. Tijdschr. v. Geneesk.* 1958, Oct. 11, v. 102, No. 41, 1992–9, 2 figs. [33 refs.]

The English summary appended to the paper is as follows:—

"The 1957 pandemic of Asian influenza originated in the Chinese province of Kweichow. There is evidence that people of the present generation have been in contact with the 1957 Asian virus before, viz., in the last quarter of the nineteenth century, and the same virus may well have been responsible for the pandemic of 1889–1890, which also had an Asian origin. The 1918 pandemic was caused by the Shope virus of Influenza A, which has since continued in North American swine with unchanged antigenic composition. The Shope virus was highly pneumotropic for human beings during the second wave of the 1918 pandemic.

"Asian 'flu' may have originated from a persistent carrier-ship in Asian swine. The Asian strain shows a definite pneumotropism for the human lung, but is not highly virulent. The insensitivity of egg-lines of the swine and Asian viruses to the so-called β inhibitor of serum is exceptional; it is very important for understanding the general problem of pneumotropism in the influenza virus, and will repay further investigation.

"Another wave of Asian influenza may be expected in the near future, possibly with a higher pneumotropic virulence of the causative virus."

Raska, K., Pecenka, J., Radkovský, J., Roudný, J. & Tumová, B. K epidemiologii chřipky v roce 1957. [**On the Epidemiology of Influenza in 1957**] *Časopis Lékařů Českých.* Prague. 1958, May 16, v. 97, No. 20, 626–33, 7 figs. English summary.

The first cases of the 1957 pandemic of influenza were observed in Czechoslovakia in May, and the early arrival of the disease was attributed to the close communications with the East. By the end of the year all parts of the country were involved. Compulsory notification was instituted in September, and in the last 4 months of the year 1,440,000 cases were recorded; the incidence of complications was 1·1% and the case mortality 0·02%. The incidence in individual districts ranged from 6·3% to 17·7%, and the mortality from 0·3 to 7·7 per 100,000. 99 strains of virus isolated were of type A57FE, 16 were A-prime and 4 were type B. *D. J. Bauer*

Keogh, E. V., Ferris, A. A., Lewis, F. A., & Stevenson, W. J. **A Serologic Survey of the Epidemic of Asian-Type Influenza in Melbourne, 1957.** *Amer. J. Hyg.* 1958, July, v. 68, No. 1, 1–5.

Sera collected from blood donors during the Asian influenza epidemic in Melbourne (July to October 1957) were tested for neutralizing antibodies against the prevalent virus. Batches of 120 sera were obtained each week from donors considered to be a representative sample of people aged 18 to 60 years. Each serum was tested in a single $(\frac{1}{4})$ dilution against a virus dilution containing 100 tissue culture doses; neutralization tests were carried out in monkey kidney cultures.

No antibody was detected in any of the sera collected during the first week of the epidemic. During the following week the proportion of sera showing antibody gradually increased until it reached an average value of 42% between the 8th and 15th weeks, when the study was discontinued. The proportion of sera with antibody was constant for different age-groups and was not significantly different from that of a sample of 150 sera collected from children during 5 weeks within the study period.

Based on these results, the authors consider as possible that between 40 and 50% of the population of Melbourne were infected during the epidemic and that the incidence of infection was constant for all ages under 60 years. The age distribution of notified cases of influenza revealed, however, a marked preponderance of disease in the younger age-groups with sudden drops of notified cases at the 20–24 and 40–49 age-groups. It is suggested that contact with the viruses responsible for the influenza epidemics of 1890, 1918 and 1935 resulted in increased resistance to symptomatic disease in 1957 without affecting the susceptibility to infection by Asian influenza virus. *H. G. Pereira*

GLAZIER, M. M. **The Effect of Immunization against Influenza on an Epidemic of Respiratory Illness in Children.** *Pediatrics.* Springfield, Ill. 1958, July, v. 22, No. 1, Pt. 1, 60–64.

The protective effect of a polyvalent influenza vaccine containing virus types A, A-prime and B was investigated in a clinical trial conducted among children in a private paediatric practice in Boston during an influenza A-prime epidemic occurring in late January, February and early March 1953. The incidence of influenza among vaccinated and unvaccinated children was based on clinical diagnosis and only moderately severe and "toxic" cases were included. The vaccinated children were divided into 3 groups consisting respectively of 128 children who had been vaccinated 1 month to 4·3 years before the onset of the epidemic (Group I), 161 children previously vaccinated and recently given a booster dose (Group II) and 302 children recently vaccinated for the first time either with 2 (Group IIIa) or with 1 (Group IIIb) dose. Influenza was diagnosed in 1 child of Group I, 1 child of Group II, 7 children of Group IIIb and in none of Group IIIa. Cases of influenza among 122 unvaccinated controls numbered 21. It is concluded that the epidemic was effectively controlled by vaccination. *H. G. Pereira*

BAYNE, G. M., LIU, O. C. & BOGER, W. P. **Asian Influenza Vaccine: Effect of Age and Schedule of Vaccination upon Antigenic Response.** *Amer. J. Med. Sci.* 1958, Sept., v. 236, No. 3, 290–99, 11 figs.

The antibody response to a monovalent Asian influenza vaccine was studied in relation to age of vaccinated subjects, route of administration and vaccination schedule. Antibody titres were measured by haemagglutination-inhibition tests with the A/Japan/305 virus strain. The response to a single subcutaneous vaccine dose was higher and more frequent in individuals aged over 40 years than in younger age-groups. Responses to primary vaccination with 200 chick-cell agglutinating (CCA) doses given subcutaneously were superior to those following a 20 CCA dose given intradermally. Vaccination with a single dose or with 2 doses 2 weeks apart gave comparable results. Higher responses, however, were obtained with 2 doses, 4 weeks apart, irrespective of the route of administration of the second dose. *H. G. Pereira*

STEFANINI, M., PIOMELLI, S., MELE, Rose, OSTROSKI, J. T. & COLPOYS, W. P. **Acute Vascular Purpura following Immunization with Asiatic-Influenza Vaccine.** *New England J. of Med.* 1958, July 3, v. 259, No. 1, 9–12, 6 figs.

A case of acute vascular purpura was observed in an adult female patient 3 days after the administration of a polyvalent influenza vaccine containing formalin-inactivated type A and Asian influenza viruses. The results of clinical and laboratory investigations are presented in detail and suggest that the disease may have resulted from a serum-sickness type of reaction to the virus protein contained in the vaccine. *H. G. Pereira*

STOVIN, Sybille. **Sporadic Acute Respiratory Infections in Adults with special reference to Adenovirus Infections.** *J. Hygiene.* 1958, Sept., v. 56, No. 3, 404–14. [13 refs.]

The role of adenoviruses in the aetiology of acute respiratory infections among the staff and student population of a London teaching hospital was investigated. 50 infections occurred among 45 volunteers observed between October 1956 and July 1957. Common cold was diagnosed in 36 cases. The remaining infections were diagnosed as pharyngitis (6), infectious mononucleosis (1) and acute respiratory infection of unknown aetiology (7). Laboratory evidence of adenovirus infection was obtained in 4 cases, of which 1 could not be clinically distinguished from a common cold. Adenovirus type 3 was isolated from 2 patients with pharyngitis. In the remaining 2 the aetiological association was based on serological findings.

The distribution of complement-fixing and serum-neutralizing antibodies for adenovirus types 1–7 and 9–10 among the study population is presented. It is suggested that an adenovirus vaccine would be of little value in reducing acute respiratory infections in the community under study. *H. G. Pereira*

GRAHAM, Doris M. **A Laboratory Study of Laryngo-Tracheo-Bronchitis in Children in Melbourne (1956).** *Med. J. Australia.* 1958, Aug. 16, v. 2, No. 7, 223–6, 2 figs. [15 refs.]

Throat washings and serum samples from 58 patients with laryngo-tracheo-bronchitis were investigated by laboratory methods including attempts of virus isolation in fertile eggs and in cultures of monkey kidney and HeLa cells, and serological tests for influenza, psittacosis, Q fever, glandular fever and infections associated with cold agglutinins. Serological evidence of adenovirus infection was obtained in 2 patients, from one of whom adenovirus type 2 was isolated. A rise in influenza A complement-fixing antibody was found in another patient. *H. G. Pereira*

EVANS, A. S. **Adenovirus Infections in Children and Young Adults. With Comments on Vaccination.** *New England J. of Med.* 1958, Sept. 4, v. 259, No. 10, 464–8, 2 figs. [19 refs.]

The aetiological importance of adenoviruses in acute respiratory infections in civilian populations was investigated. Results of a 4-year study involving 710 university students admitted to hospital with respiratory disease revealed that less than 10% of infections were due to bacteria, 8·7% were due to influenza virus, 1·4% were due to adenoviruses (types 1, 3, 4 and 6) and 81·7% were of unknown cause. Diagnostic methods included virus isolations in tissue cultures and complement-fixation tests.

Adenoviruses were isolated from 7 patients and a rise in adenovirus complement-fixing antibody was found in 10 patients. Virus isolations were also attempted from throat swabs collected at frequent intervals over a 3-month period from schoolchildren aged 7 to 9 years. Only 3 adenoviruses (2 type 1 and 1 type 5) were isolated from 1,194 swabs from 291 children.

General vaccination of civilian populations against adenoviruses is not recommended. *H. G. Pereira*

LOOSLI, C. G., TIPTON, V. C., WARNER, O., SMITH, Mabel, JOHNSTON, P. B. & HAMRE, Dorothy. **Adenovirus vaccine Evaluation Study in Naval Recruits.** *Proc. Soc. Exper. Biol. & Med.* 1958, July, v. 98, No. 3, 583–9, 4 figs. [19 refs.]

The protection conferred by a formalin-killed adenovirus vaccine containing types 3, 4 and 7 against adenovirus infections was studied in recruits at a United States naval training centre. Laboratory studies carried out before the vaccine trial revealed that 80% of dispensary admissions were due to infections by adenovirus type 3, 4 or 7. Half of the recruits in 39 companies were given vaccine and the other half were given a placebo. Weekly admission rates per 1,000 during the first 2 weeks following vaccination were 15·8 and 10·8 for vaccine and placebo groups respectively.

From the 3rd to 9th weeks after vaccination, weekly admission rates rose to 22·3 in the vaccine group and to 26·2 in the placebo group. Admissions due to adenovirus infections were determined by laboratory investigations including virus isolations and complement-fixation tests. The reduction in admission rates estimated on the basis of virus isolations was of 66% in favour of the vaccinated group. When estimated on the basis of 4-fold or higher complement-fixing antibody rise, the difference in favour of the vaccinated group was of 72%. Infections by adenovirus types 3, 4 and 7 accounted for 40% of admissions from the control group and for 15% of admissions from the vaccine group. It is concluded that vaccination significantly reduced the number of adenovirus infections.

H. G. Pereira

DEMEIO, J. L. & WALKER, D. L. **Sendai Virus Antibody in Acute Respiratory Infections and Infectious Mononucleosis.** *Proc. Soc. Exper. Biol. & Med.* 1958, July, v. 98, No. 3, 453–8. [16 refs.]

The possible role of Sendai virus (also referred to in the literature as newborn pneumonitis virus, haemagglutinating virus of mice, haemagglutinating virus of Japan and influenza D) in the aetiology of non-bacterial respiratory infection, primary atypical pneumonia and infectious mononucleosis was investigated by serological and virus isolation techniques. Among 85 patients with non-bacterial respiratory infections, 5 showed 4-fold or greater rises in haemagglutination-inhibition against Sendai virus and 3 of these also showed rises in serum neutralizing titres to the same agent. Of 50 patients with viral pneumonia or primary atypical pneumonia, 6 had rises in haemagglutination-inhibition titres and 2 of these had also rises in serum neutralizing titres. Of 110 patients with infectious mononucleosis 13 had rises in haemagglutination-inhibition titres which were shown to be associated with rises in serum neutralization in 4 patients tested. Rises in titre for Sendai virus were accompanied in a few cases by the development of low levels of haemagglutination-inhibition and complement-fixation titres against mumps virus. No serological evidence of infection by influenza A, B and C, adenovirus, psittacosis or Q fever could be detected.

Virus isolation from 17 of the 24 throat washings from patients with serological evidence of infection was attempted by amniotic inoculations into fertile eggs and by intranasal inoculations in mice, with negative results. The specimens had been stored at −20°C. for 6 months to 2 years. Arguments suggesting that the serum reactions against Sendai virus were due to antibody are presented but the possibility that the infections investigated may have been due to an agent antigenically related to Sendai virus is considered.

H. G. Pereira

DOWLING, H. F., JACKSON, G. G., SPIESMAN, I. G. & INOUYE, T. **Transmission of the Common Cold to Volunteers under Controlled Conditions. III. The Effect of Chilling of the Subjects upon Susceptibility.** *Amer. J. Hyg.* 1958, July, v. 68, No. 1, 59–65, 1 fig. [21 refs.]

Filtrates of nasal secretions from patients with the common cold were administered intranasally to male and female adult volunteers exposed to atmospheres of varying temperature and humidity. Groups of volunteers exposed to the same conditions and receiving a non-infectious inoculum were observed as controls. Of the volunteers given common cold filtrate, 175 were placed in a comfortable chamber at 80°F. and 30% relative humidity, 168 were chilled at 60°F. and 80% relative humidity for 4 hours, and 85 were chilled at 10°F. and 80% relative humidity for 2 hours.

The proportions of colds which developed in the 3 groups were 36, 32 and 39% respectively and the differences were not significant. Exposure to chilling before or after the administration of filtrate gave essentially identical results. The overall incidence of colds in control volunteers was 7% and was not affected by chilling.

The literature on the subject is reviewed and the authors conclude that the present findings confirm those of previous workers suggesting that chilling, under the experimental conditions so far tested, does not increase susceptibility to the common cold.

[See also this *Bulletin*, 1958, v. 33, 554.]

[For earlier, British work on the common cold, see *ibid.*, 1948, v. 23, 306; 1950, v. 25, 775, 776; 1952, v. 27, 400.]

H. G. Pereira

RITCHIE, J. M. **Autogenous Vaccine in Prophylaxis of the Common Cold.** *Lancet.* 1958, Mar. 22, 615–18, 1 chart.

This study was set up to test the hypothesis that "most symptoms of the common cold are caused by relatively enhanced virulence of the patients' normal nasal and pharyngeal flora following depression of his resistance by the virus". Volunteers from the staff of Lever Brothers, Port Sunlight, were randomly allocated, 109 receiving an autogenous vaccine and 75 acting as controls. Throat and nose swabs and saliva were obtained from all volunteers in the spring and summer of 1955, plated on blood agar, incubated overnight at 37°C. and the cultures rubbed off into carbol saline. A heterogeneous flora was obtained in which *Streptococcus viridans* appeared to be the commonest organism. Haemolytic streptococci when found were discarded and fresh samples taken. The vaccines were administered weekly, starting in September 1955 with a first dose of 0·1 ml., a second of 0·3 ml. and subsequent doses of 0·5 ml. No vaccines were prepared for controls but they were given carbol saline according to the same schedule. There was redness at the site of inoculation in 65% of the vaccinated and in only 12% of the controls but the group to which an individual had been allocated was kept secret.

The clinical assessment was blind and independent of the laboratory. Incidents were classified as "Full colds" if there was no apparent modification, "Colds, not so toxic" if the patient volunteered the statement that the cold was milder or shorter than was expected, "Prodromal" if there was an initial stage of non-purulent running nose for up to 2 days with no further symptoms.

The results are summarized in the table below which shows for each month from the start of vaccination the proportion of volunteers reporting (1) colds of any grade, and (2) "Full colds". In the early months the incidence of all colds was similar in vaccinated and control groups, but the incidence of "Full colds" was much reduced in those given autogenous vaccine. In the fourth and fifth months the total incidence as well as that of "Full colds" was reduced. From the third month onwards, *i.e.* after 8 injections, volunteers were allowed to discontinue inoculations if they wished; 51 continued with weekly injections and 58 stopped. In subsequent experience those continuing the full course had lower incidence of colds than those receiving only 8 injections, and both groups were better off than the controls. In October–March 1955–56, the number of days of absence per person due to sickness was in general higher than in the corresponding period of the previous year. Nevertheless, those receiving the full course of injections had on average less absence due to both colds and upper respiratory infections than previously, while the increase for volunteers given only 8 injections of vaccine was far less than for the controls.

Proportion (%) reporting colds of all grades and "Full colds"

	All colds		*"Full colds"*	
	Vaccinated	Controls	Vaccinated	Controls
1st month	45	40	3	8
2nd month	20	20	3	19
3rd month	35	39	10	21
4th month	28	47	16	35
5th month	5	20	3	20

J. Knowelden

RITCHIE, J. M. **Antibiotics in Small Doses for the Common Cold.** *Lancet.* 1958, Mar. 22, 618–21.

Following the success of his trial of autogenous vaccine in the prophylaxis of the common cold, Ritchie decided that a more practicable method of control might be short-term antibiotic therapy administered when suspicious symptoms occurred. Over 1,000 volunteers were obtained from industry, a boys' boarding school and the Birkenhead Police, and 919 completed the investigation. In the latter part of 1956 samples of saliva were collected and the flora tested for sensitivity to penicillin, streptomycin, chloramphenicol, aureomycin, oxytetracycline, erythromycin and tetracycline. Penicillin, erythromycin and streptomycin rarely gave the best inhibition rings and were not considered further, while chloramphenicol was rejected because of its bitter taste. Lozenges were obtained containing 15 mgm. each of 1 of the 3 remaining antibiotics, tetracycline, oxytetracycline and aureomycin and a fourth type of lozenge contained glucose and no antibiotic. Each type was given a number, and a card with the number corresponding to the appropriate antibiotic (according to sensitivity tests) was prepared for each volunteer. When volunteers reported prodromal symptoms, the tablets were issued by the works health centres. Except for the police, whose tablets were issued by the laboratory, the clinical assessment was made in ignorance of the patient's antibiotic group. The control group, given inert tablets, was made up of every fourth volunteer with, in addition, a relatively small number of volunteers on whose cultures sensitivity tests could not be recorded. [This statement is not in accordance with the distribution of 581 treated and 338 controls shown in the table.] The initial dosage scheme was 2 tablets a day for 2 days, but later the same daily dosage was allowed for up to 3 days. Some volunteers reported side effects such as sore throats or tongues; as a matter of policy, to avoid additional complicating factors, vitamins had not been included. Repeat tests of 141 sputa after the investigation revealed no evidence of reduced sensitivity in those given antibiotics.

In each industrial centre the results followed the same pattern. Whereas the proportion of volunteers reporting incidents was similar in treated and control groups, a smaller proportion of those taking antibiotics went on to develop a full cold. Where a volunteer was late in reporting an incident this was noted, except in the control series. [This is not compatible with the statement that "the significance of each number was not known outside the laboratory".] Some centres excluded these late reporters, but since a similar exclusion was not made from the controls, proper comparisons for these are impossible. In the combined centres where no exclusion was made, however, the number reporting incidents was 214 out of the 432 treated volunteers, *i.e.* 50%, and 182 out of 338 control volunteers, *i.e.* 54%. The number suffering full colds was 43 (10%) in the treated compared with 87 (26%) in the controls.

[Although the results of both these studies appear to support the author's hypothesis, the antibiotic trial does not seem to have been carried out with sufficient care to provide a convincing confirmation of the well controlled vaccine trial.] *J. Knowelden*

RITCHIE, J. M. **Control of the Common Cold.** [Correspondence.] *Lancet.* 1958, Sept. 27, 699–700.

In this letter, Ritchie gives details of the results, for the second winter in succession, of his use of antibiotic lozenges as a prophylactic against full development of colds. He was led to employ this method through his experience of prophylactic autogenous vaccines, which, in a large majority of cases, seemed to prevent the purulent catarrhal stages of a cold, the course being restricted to the short viral phase characterized by watery nasal secretion. In the previous winter he had found that much the same result was obtained by giving appropriate antibiotic lozenges for a few days, provided that the prophylaxis was begun on the first or second day of the symptoms [this *Bulletin,* 1958, v. 33, 639]. He now reports that among 1,120 volunteers, 838 received short-term antibiotic treatment when they felt a cold beginning, and 282 received inert tablets. In the treated group prodromal stages numbered 304 (36·3%) of which 52 (17·1%) went on to full colds. In the control group the prodromal stages numbered 121 (42·8%) of which 64 (52·9%) went on to full colds—*i.e.* 6·2 colds per 100 volunteers in the treated and 22·7 per 100 in the control group. These figures strongly support the findings of the previous year. He concludes that chronic cold sufferers should have autogenous vaccines as a prophylactic, and that those who suffer from a casual cold may respond to antibiotics on the lines indicated.

He also suggests that the use of antibiotics for a few days in an emergency like an imminent attack of influenza, may reduce the incidence and severity of bacterial invasion, and consequently of the bacterial complications of influenza. *H. Stanley Banks*

BUCHANAN, J., BUCHANAN, W. W., MELROSE, A. G., MCGUINNESS, J. B. & PRICE, A. U. **Long-Term Prophylactic Administration of Tetracycline to Chronic Bronchitics.** *Lancet.* 1958, Oct. 4, 719–23. [28 refs.]

Tetracycline, in the small dosage of 250 mgm. twice daily, was given over a period of 12 months to 26 male out-patients with chronic bronchitis, and a control group of 25 similar patients received an inert preparation of identical appearance. Acute infective relapses were defined as severe exacerbations of the bronchitic state requiring the patient to remain in bed for at least 5 days. In the treated group there was a statistically significant reduction in the number of such exacerbations compared with the control group. Subjectively the treated patients were improved and had less cough, with reduction in the volume and purulence of the sputum. More of them gained weight than the controls. No improvement could be demonstrated, however, by the objective methods of clinico-pathological examination. The mean serum level of tetracycline was 1·345 μgm. per ml., which was considered satisfactory. No serious side effects attributable to the drug were noted. It is concluded that this form of therapy is indicated in the long-term management of chronic bronchitis. *H. Stanley Banks*

CLARK, W., SACHS, D. & WILLIAMS, H. **An Outbreak of Infectious Hepatitis on a College Campus.** *Amer. J. Trop. Med. & Hyg.* 1958, May, v. 7, No. 3, 268–79, 2 figs. [15 refs.]

A sharp autumn outbreak is described, mainly among the resident students and staff of a college in North Carolina and apparently rapidly terminated by the wide use of gamma globulin in this community when the epidemic had passed its peak. Among 2,786 persons at risk there were 180 icteric and 42 non-icteric cases (having similar symptoms including hepatic tenderness); in addition there were 59 cases labelled "doubtful hepatitis" (having similar symptoms but without jaundice or hepatic tenderness). The attack rate including icteric and non-icteric hepatitis was thus 8%.

Detailed epidemiological studies failed to reveal the source of the infection, although the two factors concerned in the majority of the cases were shown to be residence in the college and association with the dining hall; thus non-resident students had disproportionately low attack rates (0·4%), and student workers in the common dining hall had disproportionately high attack rates (17 to 50%).

The wide use of gamma globulin, injected in 2 ml. doses and upwards during a period of 2 weeks, soon after the peak of the outbreak, appeared to prevent a second wave of cases. *H. Stanley Banks*

ZIAI, M. & HAGGERTY, R. J. **Neonatal Meningitis.** *New England J. of Med.* 1958, Aug. 14, v. 259, No. 7, 314–20, 1 fig. [36 refs.]

This is a review of 83 cases of neonatal meningitis occurring in the Children's Medical Centre, Boston, U.S.A., from 1932–1957: 62 babies died. The most common causes were *Escherichia coli* (25), haemolytic streptococci (15), haemolytic staphylococci (12), pneumococci (7), *Pseudomonas pyocyanea* (4) and *Aerobacter aerogenes* (3). Males outnumbered females by almost 2 to 1. Perinatal abnormalities and onset in the first fortnight tended to be associated with Gram-negative bacilli. The main symptoms were poor activity and poor general condition. Autopsy was performed on 58 infants; 19 showed otitis media and in the staphylococcal and streptococcal groups skin lesions were strikingly common. Pneumonia was also common in most groups.

A. B. Christie

PARKER, W. S. **The Spread of Poliomyelitis in Brighton in 1957.** *Med. Officer.* 1958, Aug. 22, v. 100, No. 8, 127–9, 1 fig.

"Poliomyelitis occurred in epidemic form in Brighton in mid-February, 1957." There had been a brief episode of the disease in the adjoining Borough of Hove at the end of 1956 but no cases had occurred in Brighton for some time before this. The first case was in a girl of 3 years of age living in a clearly defined quadrant of a newly-built housing estate at outlying Woodingdean. Her parents had had a febrile illness at home a fortnight before without medical attention. Several cases in Woodingdean followed, and the infection appeared to be satisfactorily confined to this area but then spread to other parts of Brighton.

This paper gives a detailed account of the epidemiological study of the epidemic, which was carried out during its course. By this careful study of the lines of progress of the infection "general restrictive measures in the town were reduced to a minimum. This was of particular importance as control and guidance during the epidemic had to take priority over the commercial function of the town as a holiday resort". A table sets out particulars of 52 cases of the disease and there are illustrations of diagrams on peg-board which were found to be very useful in giving a visual picture of the spread of the infection from case to case. The "Woodingdean infection was spread by some close impersonal factor". The later spread among some nurses, schoolchildren and other small groups "was considered to be by personal intimate contact or an exchange of infected saliva on glasses or similar means". After the end of June the number of cases began to thin out—the table shows 3 cases in July, 5 in August, and then only a total of 3 cases up to the last 1 in November.

It is noted "that this epidemic, like that in Brighton in 1955, had no connection with the bathing season or with other seasonal holiday activities in this resort".

M. E. Delafield

MILES, J. A. R., AUSTIN, F. J. & CAUGHEY, J. E. **The Development of Homologous Neutralizing Antibody during a Type 1 Poliomyelitis Epidemic.** *J. Hygiene.* 1958, Sept., v. 56, No. 3, 347–54. [11 refs.]

In April 1955, sera from 168 people in Dunedin, New Zealand, including a group of schoolboys, were examined for poliovirus neutralizing antibody by Dr. J. H. S. GEAR [CAUGHEY *et al.*, this *Bulletin*, 1957, v. 32, 122]. In October 1955, there was an outbreak of poliomyelitis in Otago due to Type 1 poliovirus, which spread to involve Dunedin. In all in Dunedin (population approximately 100,000) there were 100 notified cases. Sera from 79 individuals (schoolboys and students) who had been examined in 1955 were re-examined for poliovirus antibodies in September 1956. 10 out of 11 susceptible boys (*i.e.* titres to Type 1 poliovirus less than 1/5) had serological evidence of infection and the proportion of susceptibles acquiring antibodies declined with age till only 1 out of 15 over 15 years did so. The incidence of notified poliomyelitis was highest in older people, thus 63% of the children aged 5–9 had acquired antibodies but accounted for 22% of the notified cases, whereas those over 15 accounted for 43% of notified cases and yet only 7% of the susceptibles acquired immunity. [These figures may well be misleading because of the small unrepresentative sample tested for antibodies.] During the epidemic there was 1 case of paralytic poliomyelitis in the boys' school, but the incidence of "minor illness" was not increased over the average for the 3 previous years. There were very few changes in Type 2 and 3 antibodies. One boy who had antibodies to Type 2 in 1955 lacked them in 1956 and 2 had acquired antibodies. 5 individuals had lost Type 3 antibodies. The titres of 20 out of 22 individuals acquiring antibodies to Type 1 in the epidemic were between 1/25 and 1/125.

[The technique of the antibody titrations done in Dr. Gear's laboratory on 1955 sera is not given in this paper, or by Caughey *et al.* The technique used in this paper employed 1,000 TCD50 of challenge poliovirus with an equal volume of serum, left for 1 hour at room temperature. 3 HeLa cell culture tubes were then inoculated and the results read microscopically after 3 days at 37°C.]

A. J. Beale

PAVLATOU, M. Recherche des anticorps neutralisants antipoliomyélitiques dans la population grecque. **[Examination of the Greek Population for the Presence of Neutralizing Antipolio Antibodies]** *Ann. Inst. Pasteur.* 1958, Oct., v. 95, No. 4, 394–403, 4 figs. [41 refs.]

The English summary appended to the paper is as follows:—

"The study carried out on 255 individuals, 0 to 20 years old, allows following conclusions:

"1. The three types of virus are very common among the Greek population: 93% of the examined individuals possess antibodies against one at least of the three types.

"2. More than 50% are completely protected against the disease.

"3. Inapparent infection and the resulting immunization appear very early in life: more than 50% of 2 to 3 years old children are immunized against one at least of the three types of virus.

"4. The ratio of immunization increases with age: 50% of 4 to 5 years old children are immunized against two types of virus, and about 50% are fully immunized between 6 and 10 years. 93% of the sera of the 11–15 years age group possess antibodies against two types, and 75% against the three types. In the 16–20 years age group, 80·5% of the individuals are fully immunized.

"5. The sex does not seem to have any influence on immunization."

Shaw, M. B., Sunada, K. & Hopkey, Ione A. **Clinical Study of Four Hundred Twenty-Five Idaho Poliomyelitis Vaccine Recipients in 1955.** *J. Dis. Children. Chicago.* 1958, July, v. 96, No. 1, 58–63, 2 figs.

22 cases of poliomyelitis due to living virus in polio vaccine occurred in Idaho in 1955. In all, approximately 32,000 children were inoculated with 2 batches of vaccine from one manufacturer, and apart from the 22 cases of poliomyelitis, a wave of illness occurred in the vaccinated children.

The authors studied a sample of 425 vaccinated children in three cities in Idaho (Pocatello, Boise and Lewiston). A history of illness was taken and an examination made for muscle weakness by means of the system employed in the Francis trial [this *Bulletin*, 1955, v. 30, 663]. Blood was also taken for titration of poliovirus neutralizing antibodies. 139 of the children had a history of 3 or more of the symptoms compatible with a diagnosis of non-paralytic poliomyelitis (fever, headache, muscle pain, sore throat, stiff neck or back, vomiting) and 11% had a limp. In 103 children the onset was between 3 and 9 days following vaccination. [The average time elapsing from inoculation to illness in the paralyzed children involved in the original poliomyelitis incident was 11 days: see Peterson *et al.*, this *Bulletin*, 1956, v. 31, 248]. 27 of the 139 children had local reactions at the site of the injection. Only 1 family from the group of 286 symptom-free children had a history of generalized illness, whereas illness occurred in 18 families from the group of 139 children with symptoms. Illness in family members followed 8–30 days after that in the vaccinated child. Muscle weakness was detected in 31% of the children with symptoms and in 17% of the symptom-free children. There did not appear to be any difference in neutralizing antibodies between the two groups of children.

The authors concede that reliance on the parents' memory of events following vaccination is a weakness of this study. They believe, however, that the episode was so striking that little loss of memory for the events occurred. They conclude that the symptoms of illness were due to the presence of living poliovirus in the two batches of vaccine used in Idaho between April 19 and 27, 1955 [*ibid.*, 1956, v. 31, 1270]. *A. J. Beale*

Sunada, K., Gerloff, R. K., Brock, D., Hopkey, I., Eklund, C. M. & Klotz, A. W. **Observations on the Potency and Safety of Poliomyelitis Vaccine (Salk Type) currently used.** *J. Dis. Children. Chicago.* 1958, Aug., v. 96, No. 2, 125–30.

The safety and potency of poliovaccine used in Idaho in 1956 was investigated by studying 748 children aged 5–15 years. 605 children were vaccinated with 2 intramuscular injections spaced 1 month apart. One batch of vaccine was used for these injections and before use additional safety tests in monkeys, and tissue cultures, had been performed by Dr. J. T. Syverton.

The response to 1 dose of vaccine of triple negative children (less than 1 in 8) was poor; only 3%, 20% and 2% to Types 1, 2 and 3. Similarly, after 2 doses (7 months after the second dose) the figures were 7%, 49% and 4%. One month after a third dose given 7 months after the second dose the responses were better: Type 1 73%, Type 2 99% and Type 3 29%. A fourth dose was given to children who lacked antibodies to one or other type after 3 doses. 4, 0 and 12 of 27 children, initially without antibodies to all 3 types of virus, still lacked antibodies to Types 1, 2 and 3, respectively after a fourth dose.

Antibody response was considerably enhanced in children who already had antibodies. Type 1 response was enhanced by previous Type 1 and 2 antibodies; Type 2 by antibodies to any type and Type 3 only by previous Type 3 antibodies.

Antibodies induced by vaccine as opposed to natural infection did not appear to enhance heterotypic antibody production.

The vaccine used in this trial appeared to be completely safe, no child developing paralysis, or excreting virus (2 out of 121 children excreted Type 3 in an area where Type 3 was known to be causing disease).

[These results are not as good as those originally reported by Salk (this *Bulletin*, 1956, v. 31, 612), but the blood samples were not taken till 7 months after the second dose in the present investigation.]

A. J. Beale

Martins da Silva, M., Prem, K. A., Johnson, E. A., McKelvey, J. L. & Syverton, J. T. **Response of Pregnant Women and their Infants to Poliomyelitis Vaccine. Distribution of Poliovirus Antibody in Pregnant Women before and after Vaccination—Transfer, Persistence and Induction of Antibodies in Infants.** *J. Amer. Med. Ass.* 1958, Sept. 6, v. 168, No. 1, 1–5, 1 fig. [16 refs.]

An attempt was made to immunize pregnant women against poliomyelitis, and also their infants as antibodies passively acquired from the mothers declined. 186 women were studied. 11·3% lacked antibodies to all 3 types of poliovirus and 35% had antibodies to all 3 types. Relatively few mothers had antibody titres over 1 in 1,000. 133 women received 2 doses of vaccine, either 1 ml. subcutaneously or 0·2 ml. intradermally. 73% of the women without antibody to one or more types developed antibody to all 3 types after vaccination. The results following intradermal injection were slightly inferior to those following subcutaneous injection.

Poliovirus neutralizing antibody was transferred to the infant in the same titre as in the maternal blood. The rate of decline showed a half life for all 3 types of 37 days. 77 infants were given 2 subcutaneous doses of vaccine 1 month apart starting 3–12 months after birth when the passively acquired antibodies had disappeared.

After 2 doses 32·5% of the infants showed a response to all 3 types and 6·5% no response to any types. The percentages failing to respond to individual types were Type 1, 43·5%; Type 2, 18·4%; Type 3, 35·5%. Very few of the infants produced antibody titres over 1 in 64 to any type of poliovirus.

It is concluded that poliovaccine probably confers extra protection against poliomyelitis to pregnant women, and that the response of infants to vaccine is less good than that of adults. This poor response may be due to the fact that the infants have had no contact with poliovirus or related antigens. *A. J. Beale*

BULL. ACAD. NAT. MÉD. 1958, v. 142, Nos. 19/20, 520–50, 2 figs., 2 charts & 2 graphs. [12 refs.] L'immunisation et la vaccination contre la poliomyélite. [**Immunization and Vaccination against Poliomyelitis**]

R. MARTIN, J. VIRAT and J.-P. DAMAS (pp. 520–28) describe the serological response to French poliovaccine given in 3 doses (3 weeks apart) of 1 cc. subcutaneously. The response appeared better if the second sample of blood was taken at least 4 weeks after the last dose of vaccine. The best results were obtained with type 1 and similar results with types 2 and 3. The vaccine was less effective in children 1–2 years than in older children. Also, it was found that if antibodies to one type of virus were already present the response to other types was enhanced.

M. JANBON, D. BRUNEL and O. FLANDRE (pp. 529–31) report the pattern of acquisition of antibodies in Montpellier. 50% of children have antibodies to individual types of poliovirus by the time they are 10 years old but antibodies to all 3 types are rare in the population sampled up to 25 years of age. These observations are in accord with the observation of many cases of paralysis in young adults and in newborn children whose mothers lack antibodies.

P. LÉPINE, J. VIRAT, and J.-B. MAUVAIS (pp. 531–37) describe studies on the incidence of antibodies to poliovirus in France. Although the number tested is small, the rate of acquisition of antibodies is similar to that in the U.S.A. rather than that in Egypt. Antibodies are acquired more quickly in those living under poor hygienic conditions. In Paris most of the cases are in children under 5 years old, the group which contains the smallest proportion with poliovirus neutralizing antibodies. P. LÉPINE, J. MAURIN and J. VIRAT (pp. 537–41) have studied the distribution of the 3 poliovirus types in France since 1954. There has been in recent years an increase in the incidence of poliomyelitis in France and a tendency for cases to occur in young adults, and in recent years Type 1 poliovirus has predominated. In 1954–55 56·5% of isolations were Type 1, in 1956 67·4% and in 1957 89·4%.

C. GERNEZ-RIEUX and M. GERVOIS (pp. 542–50) describe the serological response of individual people in the department of Nord. The majority of children had antibodies to at least one type before vaccination and over 50% to all 3 types afterwards.

In the discussion Lépine notes that it is difficult to know how to assess immunity to poliomyelitis. The choice of a serum dilution as indicative of immunity is arbitrary. Sera were tested at a dilution of 1 in 10 in these studies, whereas in the U.S.A. and elsewhere it is usual to use a 1 in 4 dilution. *A. J. Beale*

WOHLRAB, R., ANZ, W. & HÖPKEN, W. Über Polioimmunität und über Wirksamkeitsprüfung von Salk-Polio-Vakzine bei der Polio-Impfaktion 1957 in Niedersachsen. [**Poliomyelitis Immunity and the Efficacy of Salk-Type Poliomyelitis Vaccine in the 1957 Vaccination Campaign in Lower Saxony**] *Desinfektion u. Gesundheitswesen.* 1958, Mar., v. 50, No. 3, 38–44, 4 figs.

Among 100 children aged up to 9 years lacking poliomyelitis antibody who were vaccinated with 2 doses of Salk vaccine in Lower Saxony in 1957, 40 failed to form type I antibody, 4 failed to form type II and 58 failed to form type III antibody. In 121 children who had antibody of 1 or more types before vaccination, formation of antibody of the types previously absent was usually observed, and the titres attained were higher than those developing in children who had no previous immunity. *D. J. Bauer*

PETZELT, K. Der bisherige Verlauf der Poliomyelitisschutzimpfung in Niedersachsen. [**The Progress of Poliomyelitis Vaccination in Lower Saxony**] *Desinfektion u. Gesundheitswesen.* 1958, Mar., v. 50, No. 3, 45–8.

In 1957, 94,783 persons were vaccinated against poliomyelitis in Lower Saxony; 89,750 persons received 2 doses of vaccine, and 184,533 cc. were used in all. The majority of vaccinated persons (66,584) were children aged 4–14 years. The campaign was not well received by the public at first, and did not get under way until it became evident that the procedure was not attended by risk. A mild general reaction was observed in a few cases [number not stated], and 9 children developed an allergic reaction. 182 cases of poliomyelitis occurred subsequently in the area, and none of the patients had been vaccinated; the incidence was 0·3 per 10,000, compared with 0·5, 0·6 and 0·4 for the 3 previous years. The vaccination rate for Lower Saxony was 144·7 per 10,000, substantially greater than the mean rate for West Germany (117·0 per 10,000). *D. J. Bauer*

EKLUND, C. M., BELL, E. J. & GERLOFF, R. K. **Poliomyelitis in Idaho after use of Live Virus Vaccine.** *Pub. Health Rep.* Wash. 1958, July, v. 73, No. 7, 637–47, 7 figs.

In April 1955 there were 20 cases of poliomyelitis (17 paralytic and 3 non paralytic) among 32,000 children given 1 or other of 2 lots of poliovaccine. These cases were thought to be due to living virus in the vaccine because:—(a) they occurred within a few days of vaccination—10 to 7 days or less; (b) cases were scattered throughout the State; (c) 12 of the 17 paralytic cases started with paralysis of the inoculated limb; (d) poliovirus was recovered from the suspected lots of vaccine.

All the cases were due to Type 1 poliovirus, but the vaccine contained all 3 types of virus. One batch was extensively tested in monkeys and 4 out of 10 animals were infected with Type 1, 3 out of 10 with Type 2 and 2 out of 7 with Type 3.

20% of a sample of 649 vaccinated children suffered from minor illness consisting of fever, headache, generalized aches, sore throat and nausea, or vomiting within 1–2 weeks of the injection. These illnesses were thought to be due to infection with Type 1, or Type 3 virus on the basis of the frequency of very high titres of neutralizing antibodies. Many children also had high titres to Type 2 virus, suggesting that infection with this type also occurred.

61 cases of poliomyelitis occurred in contacts of vaccinated children. These were usually in children under 15 or in women. About half occurred within one month of vaccination of the contact.

In addition, 86 patients with poliomyelitis who did not have contact with vaccinated children were diagnosed in Idaho in 1955.

Despite the introduction of a virulent virus into a susceptible population (about 50% children lacked antibodies to one or other type of virus) the expected severe epidemic of poliomyelitis did not occur.

It was found that the serological response of children to 1954 vaccine differed from that to 1955 vaccine containing living virus, in that children usually either failed to respond, or developed a high titre (over 1 in 1,024) to the 1955 vaccine, whereas to 1954 vaccine most children responded with intermediate titres of 1 in 16 to 1 in 256.

[This important paper deserves to be read in the original.] *A. J. Beale*

TYRRELL, D. A. J., LANE, R. R. & SNELL, B. **Further Studies of an Epidemic of Exanthem associated with Aseptic Meningitis.** *Quart. J. Med.* (n.s.) 1958, July, v. 27, No. 107, 323–33, 6 figs. (3 on pl.) [30 refs.]

An outbreak of a disease characterized by aseptic [*i.e.* non-bacterial] meningitis and a rubella-like rash caused 85 recognized cases in a mixed mining and rural general practice of 3,500 patients in the Sheffield area [see also this *Bulletin,* 1957, v. 32, 215]; many other cases probably occurred and it was estimated that 1 out of 20 patients in the practice were affected. Children under 10 years were highly susceptible. The illness took many forms and many cases would not have been diagnosed as a specific disease if they had not occurred along with other cases. There were 4 main types of illness—a vague illness with headache and malaise, an illness with rash, malaise and adenitis, an illness with aseptic meningitis with rash, and aseptic meningitis without rash. One patient, aged 40, had an encephalitic type of illness. Common symptoms were pyrexia, headache, vomiting, adenitis and small ulcers of the buccal mucous membrane.

A Coxsackie A virus serologically related to ECHO virus 9 was recovered in throat swabs or faeces from 28 of 49 taken from affected patients compared with 3 of 31 taken from controls. Neutralizing antibody was present in 14 of 14 patients compared with 9 of 20 controls and a rise of antibody was demonstrated in 10 of 14 patients. *A. B. Christie*

[A plea has recently been made by Professor Robert CRUICKSHANK that the term "aseptic meningitis" should be abandoned, since the word "aseptic" usually means "sterile". The term "abacterial" or "non-bacterial" would be accurate. *Ed.*]

JOHNSSON, T., LYCKE, E., WICTORIN, B. & JÖNSSON, B. **Studies on an Epidemic of Aseptic Meningitis in Association with Coxsackie and ECHO Viruses. II. Serological and Clinical Observations.** *Arch. f.d. gesamte Virusforschung.* 1958, v. 8, No. 3, 285–93, 1 fig.

In this paper the clinical features of non-bacterial meningitis occurring in Sweden in 1954 are presented. The cases were due to ECHO 6 virus and the features of the non-bacterial meningitis were unremarkable. No patients had a rash, about one-third had a minor illness preceding the non-bacterial meningitis. It was found that the neutralization test gave a reliable indication of infection with ECHO 6 virus but that complement-fixation (CF) tests were of less value. Thus although 50% of patients with evidence of ECHO 6 infection by virus isolation showed a rise in CF antibody titre, a similar proportion of patients infected with Coxsackie B3 or 4 viruses showed a rise to ECHO 6 virus. It is noted that VON ZEIPEL and SVEDMYR [this *Bulletin,* 1957, v. 32, 1137] have observed a similar rise in ECHO 6 complement-fixation antibodies in patients infected with polioviruses.

[For Part I, see *ibid.,* 1957, v. 32, 1137.]

A. J. Beale

BERGLUND, A., BÖTTIGER, Margareta, JOHNSSON, T. & WESTERMARK, S.-E. **An Outbreak of Aseptic Meningitis with a Rubella-Like Rash probably caused by ECHO Virus Type 9.** *Arch. f.d. gesamte Virusforschung.* 1958, v. 8, No. 3, 294–305, 1 fig. [21 refs.]

In 1956 there were widespread epidemics of non-bacterial meningitis in which many patients had a rubelliform rash associated with ECHO 9 virus infection. Epidemics were observed in most countries of Europe, Canada and the United States. In this paper an epidemic occurring in Sweden is reported. The first cases occurred at the end of August and the epidemic continued till December. In all, 95 cases of non-bacterial meningitis were admitted to hospital from a population of 290,000. About a quarter of the patients had a rubelliform rash but many additional patients had a rash but not the full features of non-bacterial meningitis. In a sample of 23 patients shown to be infected with ECHO 9, 15 had a rash.

Virus studies were carried out on a few patients and ECHO 9 virus was isolated from about 90%. Virus was obtained not only from faeces but also from the cerebrospinal fluid. It was found that complement-fixation tests with ECHO 9 virus were not specific, patients infected with Coxsackie B4 or ECHO 6 virus frequently showing rises to ECHO 9 virus. Conversely patients infected with ECHO 9 showed complement-fixation antibody responses to ECHO 6 virus. It is concluded that the complement-fixation reaction is not of value in the diagnosis of the specific type of entero-virus infection. The ECHO 9 strains isolated were all immunologically closely similar. The isolation rate was better in monkey kidney than in human embryo lung cultures. Most of the strains were readily adapted to suckling mice producing lesions typical of Coxsackie group A viruses.

Apart from the rash the features of the aseptic meningitis were typical. About half the patients had a preliminary minor illness. No buccal lesions as seen by TYRRELL and SNELL [this *Bulletin*, 1957, v. 32, 215] were described. Family infections were frequent with clinical manifestations in more than 1 member. None of the patients was paralysed, but a patient, 2 years of age, seen in 1957 is mentioned, who had mild limb paralysis with no antibodies to any poliovirus type but a rising titre to ECHO 9 virus. *A. J. Beale*

JOHNSSON, T., BÖTTIGER, Margareta & LÖFDAHL, A. **An Outbreak of Aseptic Meningitis with a Rubella-Like Rash probably caused by ECHO Virus Type 4.** *Arch. f.d. gesamte Virusforschung.* 1958, v. 8, No. 3, 306–17. [27 refs.]

An outbreak of aseptic meningitis which occurred in Southern Sweden at the end of 1956 is described. Some of the patients had a rubelliform rash. 8 ECHO viruses were isolated from 12 patients with non-bacterial meningitis, 8 of whom had a rash. The same virus was isolated from the cerebrospinal fluid of 2 patients and also from a patient with a rash only and from family contacts. The virus was not pathogenic for suckling mice nor neutralized by ECHO 9 or ECHO 16 viruses which have been previously associated with non-bacterial meningitis and a rash. The strains were neutralized by a serum made in monkeys to ECHO 4 virus. The patients failed to develop neutralizing antibodies to ECHO 4 virus as judged by conventional techniques. It is established that ECHO 4 virus is a poor antigen for producing neutralizing antibodies, but the authors suggest that more sensitive techniques for antibody detection, such as the plaque reduction method of HSIUNG and MELNICK [this *Bulletin*, 1957, v. 32, 817] or the immuno-inactivation method of GARD [*ibid.*, 1958, v. 33, 288] might give better results. ECHO 4 virus was slow growing and appeared to grow better in human embryo lung or kidney cultures than in monkey kidney or human amnion cells.

The cross-reactions in complement-fixation tests noted above between ECHO, Coxsackie and polioviruses are summarized and new observations with ECHO 4 complement-fixing antigen reported. Patients yielding ECHO 4 frequently show a complement-fixation antibody response to ECHO 4 and 6 and Coxsackie B4 viruses. Similarly patients yielding Coxsackie B4 virus often show a rise in complement-fixation antibodies to ECHO 4 virus. These cross-reactions show that the complement-fixation test does not enable the type of enterovirus (polio, Coxsackie or ECHO) infection to be determined. They underline the close relationship between this group of viruses. *A. J. Beale*

MÖBUS, L., POTEL, J. & HLAWATSCH, S. Beitrag zur Klinik und Virologie der Coxsackie-Infektion unter besonderer Berücksichtigung der Herpangina. **[The Clinical Picture and Virology of Infection by Coxsackie Virus with particular reference to Herpangina]** *Ztschr. f.d.g. Hyg. u. ihre Grenzgebiete.* Berlin. 1958, Jan.–Feb.–Mar.–Apr., v. 4, Nos. 1/2, 32–53, 4 figs. [Numerous refs.]

Since 1954 cases of illness with throat involvement which were identical with the herpangina described in the literature became increasingly common in the clinic of one of the authors of this paper. The main purpose of this paper is to record clinical experiences and the results of virus studies in 4 groups of patients, one group having herpangina, in order to study the possible relationship between this condition and other diseases for which the causative organisms have been assumed to be Coxsackie virus. The 4 groups considered were:—(1) herpangina (also with myalgia or meningitis); (2) the myalgic syndrome Bornholm disease; (3) uncertain virus infection (" summer influenza ", " 3 day fever " and others); and (4) non-bacterial meningitis. The last 3 groups were of disease conditions without herpangina.

The experience of over 300 cases of herpangina is described with much clinical detail, many case reports, and particulars of seasonal occurrence, age and sex of the patients and results of laboratory virus examinations. It is suggested that the condition of herpangina should be subdivided into (1) idiopathic herpangina—caused by Coxsackie virus and possibly also by other viruses, and (2) symptomatic herpangina—in which the clinical picture of the condition is an accompaniment of infections by other viruses or by bacteria. *M. E. Delafield*

JAVETT, S. N., HEYMANN, S., MUNDEL, B., PEPLER, W. J., LURIE, H. I., GEAR, J., MEASROCH, Veronica & KIRSCH, Z. **Myocarditis in the Newborn Infant. A Study of an Outbreak associated with Coxsackie Group B Virus Infection in a Maternity Home in Johannesburg.** *J. Pediatrics.* St. Louis. 1956, Jan., v. 48, No. 1, 1–22, 3 charts & 11 figs.

" In October and November, 1952, at which time Bornholm disease was prevalent in Johannesburg, a number of babies became ill while in, or soon after discharge from, the maternity home in which they were born. Their ages at onset ranged from 5 to 17 days.

" Characteristically they showed a biphasic type of illness, the initial episode consisting of a few loose stools followed after an interval of three to eight days by a fulminating illness ending in a circulatory collapse. Of ten babies affected six died.

" The main clinical evidence for myocarditis was a tachycardia above 200 beats per minute and abnormal T_1 in the electrocardiogram.

" Post-mortem examination carried out on three of the fatal cases revealed that the outstanding lesion was a patchy myocarditis. In one case a focus of encephalitis was also demonstrated. It was concluded that death resulted from acute heart failure and circulatory collapse.

" Bacteriological investigations failed to reveal a cause for this condition.

" In virus studies it was shown that the baby mice inoculated with suspension of the brains from two of the fatal cases developed lesions of the brain resembling those produced by Coxsackie group B virus. Fat pad lesions resembling those produced by Coxsackie group B virus were also seen in sections of these mice, as well as in baby mice inoculated with the feces from two of the babies who recovered. One of these viruses was established in serial passage, and it regularly produced fat pad lesions. It was typed in cross-immunity tests and shown to be a Coxsackie group B type 3 virus.

"It was concluded that in newborn babies Coxsackie group B virus may be a cause of an acute infection associated with a myocarditis, which may end fatally."

ADDITIONAL NOTE

"Recently, Coxsackie group B virus has been isolated from the heart muscle of a new born infant admitted to the Transvaal Memorial Hospital for Children when 9 days old. This child had symptoms and signs of myocarditis and died soon after admission.

"Histological sections showed lesions of myocarditis similar to those described in this paper. This case will be fully documented in a paper to be published, but its occurrence and the isolation of the virus from the muscle confirm the conclusion drawn in this paper."

(i) SUCKLING, P. V. & VOGELPOEL, L. **Coxsackie Myocarditis of the Newborn.** *Med. Proc.* Johannesburg. 1958, June 14, v. 4, No. 12, 372–89, 14 figs. [13 refs.]

(ii) SIMENHOFF, M. L. & UYS, C. J. **Coxsackie Virus Myocarditis of the Newborn. A Pathological Survey of 4 Cases.** *Ibid.*, 389–97, 5 figs. [18 refs.]

(iii) NAUDÉ, W. du T., SELZER, G. & KIPPS, A. **Coxsackie Virus Myocarditis of the Newborn. Virus Studies.** *Ibid.*, 397–401.

(iv) KIPPS, A., NAUDÉ, W. du T., DON, P. & COOPER, E. D. **Coxsackie Virus Myocarditis of the Newborn. Epidemiological Features.** *Ibid.*, 401–6, 1 fig.

These 4 important papers describe the investigation of 2 epidemics of Coxsackie B myocarditis in the neonatal period which occurred in a maternity home in Cape Town early in 1957. In all there were 9 cases with 4 deaths. Coxsackie B-3 virus was isolated from the myocardium of all fatal cases and from the stools of those that recovered.

(i) Suckling and Vogelpoel discuss the clinical features of 8 of the 9 cases (pp. 372–89). The disease is not easy to recognize, but should be considered in cases of sudden death in infancy. Routine temperature recording in the newborn is recommended as fever is usually the first sign of illness in Coxsackie B myocarditis. Redness of the throat was a constant symptom. The heart rate was increased and a systolic murmur was frequently heard. Cyanosis and signs of circulatory collapse were seen in the more severe cases. Serial electrocardiograms were valuable in diagnosis, but X-ray of the chest was not. Treatment consisted of rest secured by chloral hydrate sedation, digitalis, oxygen and the use of breast rather than cows' milk. The use of cortisone and hypothermia were rejected because both have been found to enhance experimental Coxsackie B infection in mice [BORING *et al.*, this *Bulletin*, 1956, v. 31, 469; *ibid.*, 1957, v. 32, 907].

(ii) Simenhoff and Uys describe the pathological findings in the 4 fatal cases (pp. 389–97). The characteristic feature is myocarditis. There is diffuse oedema, necrosis of myocardial fibres and varying degrees of acute inflammatory response usually confined to focal necrotic areas. Macroscopically there is little to see in the heart and from each child 1 fair-sized section from the myocardium failed to show the histological signs of myocarditis. Multiple sections showed clearly, however, that the lesions were widespread in all chambers. The 4 children died after illnesses of 2, 5, 9 and 11 days and from this an estimate of the progress of the lesions was made. By the 9th day some calcification was seen in degenerate muscle fibres and by the 11th day fibrosis was widespread and the acute polymorphonuclear and necrotic phase was largely over. 3 of the 4 cases showed a fibrinous exudate over the peritoneal surface of the liver. 1 case showed areas of necrosis with surrounding inflammatory reaction. No giant cells characteristic of neonatal hepatitis were seen in this case. It was concluded from the histological evidence that resolution of the myocardial lesions was rapid and that, if death did not occur, recovery was likely to be complete as the heart increased in size with the growth of the child. The aetiology of the cardiac lesions was almost certainly Coxsackie B-3 since the virus was isolated from the myocardium and similar findings have been recorded by other workers in man (for example, JAVETT *et al.* [above]; KIBRICK and BENIRSCHKE [this *Bulletin*, 1957, v. 32, 312]) and in cortisone-treated mice (KILBOURNE *et al.* [*ibid.*, 1956, v. 31, 959]). The hepatic lesions in 1 case were of less certain aetiology, but the authors suggest that liver biopsy might be tried as a method of virus isolation. However, no virus was recovered from the liver at post mortem from this case, although it was from another case which did not show hepatic lesions.

(iii) Naudé *et al.* (pp. 397–401) describe the virus studies. Coxsackie B-3 virus was isolated in monkey kidney monolayer cultures from the myocardium of all the fatal cases. In one case the titre was $10^{-8 \cdot 5}$ TCD50 per gm. and in all over 10^{-3} TCD50 per gm. Virus was also recovered from the pancreas of 2 cases and from the liver (not of the case with lesions) and brain of 1 out of 2 tested. The virus was recovered from the stools of all 9 patients. The virus was pathogenic for suckling mice causing lesions associated with Coxsackie B group infection. 2 experiments on mice were performed. First, Coxsackie B-3 virus was inoculated intracerebrally into mice of various ages and the titre of virus in brain and heart determined. It was found that the titre in the heart exceeded that in the brain in 1-, 2- and 5-day-old mice, but that in 21-day-old mice, virus could not be recovered from either organ. The second experiment was on the effect of cortisone (1·6 mgm. intraperitoneally on 2 successive days) on Coxsackie B-3 virus infection of adult mice. Viraemia occurred earlier in cortisone-treated mice and high titres occurred in the myocardium by the 2nd day, whereas virus was detected in the heart on the 3rd day in control mice. Ultimately the same order of virus concentration in the heart was reached in control animals.

(iv) Kipps *et al.*, describe the epidemiology (pp. 401–6). An outbreak of Bornholm disease associated with Coxsackie B-3 infection was occurring in Cape Town about the same time as the epidemics occurred. In addition there was an increased prevalence of poliomyelitis (mainly due to Type 1 poliovirus) and some of the non-paralytic cases yielded Coxsackie B viruses. The outbreak occurred in a modern private maternity home for 50 mothers. There were 2 large nurseries on separate floors, each containing 21 cots. The first outbreak occurred when 1 mother had a sore throat and pyrexia 3 days after delivery. 5 days later her baby became ill and ultimately died. The mother had Coxsackie B-3 neutralizing antibodies in her serum, but stools were not examined for virus. 5 other babies were found to be pyrexial and have symptoms of myocarditis. All the attacked babies had been born after the first child to fall ill and were probably infected by it in the nursery. The institution was closed, fumigated with formalin and then re-opened. About 6 weeks later another episode occurred in the same maternity home and nursery ward. A mother developed fever, tightness and pains in the chest 3 days after delivery. 3 days later her baby developed myocarditis from which it later died. 2 other babies also became ill about 3 days later. Coxsackie B-3 virus was isolated from all the ill children. All the mothers, babies and staff of the upper floor of the maternity home were examined for virus. 1 baby and 1 nurse were excretors. The nurse had been looking after mothers in the first outbreak and infants in the second. The mother of the child with symptom-free Coxsackie B-3 infection developed Bornholm disease and serological evidence of Coxsackie B-3 infection. 2 visitors to the mother, who fell ill in the 2nd outbreak, developed Bornholm disease 2 days after she did. 2 adults were still excreting virus in their stools at 2 weeks, but not when examined later. It was thought that the infections on both occasions were brought in by mothers from outside and that aerial infection in the nursery occurred to susceptible newborn infants. All the infants first became ill between 5–8 days of life. After the second outbreak the large nursery was abandoned and the babies nursed in the same room as the mothers. Although so far this measure has been successful, it is pointed out that at about the time it was instituted, Coxsackie B infection seemed to be declining in the community. *A. J. Beale*

SABIN, A. B., KRUMBIEGEL, E. R. & WIGAND, R. **ECHO Type 9 Virus Disease. Virologically Controlled Clinical and Epidemiologic Observations during 1957 Epidemic in Milwaukee with Notes on Concurrent Similar Diseases associated with Coxsackie and Other ECHO Viruses.** *J. Dis. Children.* Chicago. 1958, Aug., v. 96, No. 2, 197–219, 3 figs. [22 refs.]

This paper of 22 pages gives a detailed account of an epidemic of disease due to ECHO 9 virus in Milwaukee. The epidemic started in June, 1957, and lasted till September, with a peak in August. The clinical features of cases proved to be due to ECHO 9 virus are described in detail. Patients in hospital suffered from non-bacterial meningitis and patients in their own homes from a basically similar illness, but with less severe signs of meningeal involvement. It was thought that many of the patients at home would have shown abnormal cerebrospinal fluid if a lumbar puncture had been performed. Approximately one-third of the patients had more than 500 cells per cmm. in the cerebrospinal fluid. 6 patients showed signs of more extensive central nervous system involvement pointing to involvement of the vestibular nuclei in the medulla (choreiform movements, lack of balance, ataxia and vertigo). The unusual feature of the aseptic meningitis was the presence of a pink maculo-papular rash usually starting on the face and spreading to neck, trunk and extremities. The rash lasted 2–9 days. It was more frequent in young children, 16 out of 17 under 3 years developing a rash, whereas after the age of 15 only 6% had a rash.

The ECHO 9 viruses differed antigenically from the prototype ECHO 9 strain, in that serum to the prototype virus did not neutralize the strains as well as did homologous serum. The ECHO 9 strains also differed from the prototype strain in being pathogenic (with few exceptions) for suckling mice producing Coxsackie A type lesions. The virus was easily recoverable from throat swabs, faeces and cerebrospinal fluid. Neutralizing antibody appeared very early in the disease. In the Milwaukee patients no viraemia was detected, but it is stated that viraemia has been observed in other patients before the onset of symptoms of ECHO 9 infection. Despite the fact that there was a big epidemic in Milwaukee with an estimated 28,000 cases in the city (population 740,000) over 50% of sera from pregnant women failed to show neutralizing antibodies after the epidemic.

During the ECHO 9 epidemic, Coxsackie A 9 ECHO viruses 2, 14 and 16 were also isolated from a few patients with a similar illness and rash. Also 1 isolation was made of Coxsackie B 3 and 4, and 2 of B 5, all from patients with non-bacterial meningitis. Poliovirus Type 3 was isolated from a case of paralytic poliomyelitis. ECHO 18 was isolated from the stools of a baby who died of encephalitis, but there was no definite evidence that it was the cause. 2 untypable ECHO viruses were isolated.

Since the rash associated with ECHO 9 and some other enteroviruses may be mistaken for rubella, it is considered important to investigate the effects of ECHO 9 infection of pregnant women upon the incidence of abortion and congenital defects. A controlled investigation is under way in Milwaukee. *A. J. Beale*

KIBRICK, S. & ENDERS, J. F. **Disease due to ECHO Virus Type 9 in Massachusetts, 1958.** *New England J. of Med.* 1958, Sept. 4, v. 259, No. 10, 482–4.

A brief account of the features of illness associated with ECHO 9 virus infection derived from the literature and the study of cases in the Boston area is given. The virus spreads rapidly in the community and infection is rarely subclinical. Virus may persist in the faeces for several weeks. The incubation period is estimated at 3–6 days. Clinically the infection is usually manifest as minor illness (low grade fever, headache and myalgia), febrile illness with a rash or non-bacterial meningitis, or both rash and non-bacterial meningitis. The cerebrospinal fluid cell count is usually under 500 (mainly neutrophils first, then mononuclears) but sometimes exceeds 1,000 per cmm. The sugar level in the cerebrospinal fluid is normal. The virus is often isolated from the cerebrospinal fluid. The rash usually resembles rubella or mild measles, consisting of pink macules, but petechial elements are seen sometimes. It usually starts on the face and spreads to involve the rest of the trunk and limbs. The rash is more common in infants and children. It appears early in the disease, and not as the fever is resolving as in roseola or ECHO 16 infection (Boston exanthem) [this *Bulletin*, 1956, v. 31, 1065]. An exanthem consisting of yellowish or greyish-white ulcers on the pillars of the fauces and baccal mucosa is sometimes seen. Cough, coryza and conjunctivitis are not features of the disease.

A. J. Beale

FROTHINGHAM, T. E. **ECHO Virus Type 9 associated with Three Cases simulating Meningococcemia.** *New England J. of Med.* 1958, Sept, 4, v. 259, No. 10, 484–5. [10 refs.]

Detailed clinical histories of 3 patients with ECHO 9 infection are presented. In all 3 meningococcal septicaemia was entertained because of the presence of a petechial rash and fever, and in 2 there was evidence of meningitis with a raised cell count in the cerebrospinal fluid. Laboratory studies failed to confirm the diagnosis but established ECHO 9 virus infection. Similar cases were seen in Toronto in 1956 (LA FOREST *et al.*, *Canadian Med. Ass. J.*, 1956, v. 77, 1).

A. J. Beale

ŠKVARIL, F. & SLONIM, D. Stanovení obsahu protilátek proti viru čs klíšťové encefalitidy v rivanolovém gama globulinu a ethanolových subfrakcích II a III rekonvalescentní lidské plasmy. [**Determination of the Content of Antibodies against the Virus of Czechoslovak Tick-Borne Encephalitis in Rivanol Gamma-Globulin and Ethanol Subfraction II and III of Convalescent Human Plasma**] *Českoslov. Epidemiol., Mikrobiol., Imunol.* Prague. 1958, v. 7, No. 3, 171–4. English summary.

An investigation has been made of the antibody content of gamma globulin isolated from pooled sera from persons who had recovered from Czechoslovak tick-borne encephalitis. The serum was mixed with 5 volumes of 0·3% rivanol solution, the precipitate was removed by centrifugation and the rivanol was removed by adsorption on activated charcoal. After adjustment of the *p*H to 7·2 with glycine buffer the gamma globulin was precipitated by adding 53·3% ethanol to a final concentration of 25% at −6°C. On reconstitution the gamma globulin had a neutralization index of 4·5 log units, compared with 3·8 for the starting material. The serum was also treated by the ethanol precipitation method and the main bulk of antibody was recovered in the II-1,2 and II-3 fractions.

D. J. Bauer

NABOKOV, V. A., LARYUKHIN, M. A., TARABUKHIN, I. A., CHUMAK, N. F. & CHIGIRIK, E. D. [**A 3-Year Experience of Control of the Vectors of Tick-Borne Encephalitis in Kemerovo Region (1955–1957)**] *Med. Parasit. & Parasitic Dis.* Moscow. 1958, v. 27, No. 2, 199–207, 8 figs. [In Russian.]

In 1956, 1,736 hectares of forest in the Kemerovo *oblast* were sprayed in the spring with 10% DDT dust from a tractor at the rate of 30 kgm. per hectare, and in the following year the numbers of ticks were very much reduced in comparison with untreated control areas. Work studies showed that 1 man could treat 7·2 hectares in a 6-hour day. In the same year 2,955 hectares were also treated from the air, but the use of aircraft from temporary airfields in prolonged wet weather gave rise to difficulties. A trial was therefore made of autumn dusting, and it was found that the powder persisted under the snow throughout the winter and gave a satisfactory kill in the following spring. Laboratory studies with BHC carried out on *Ixodes persulcatus* showed that the minimum surface dose causing 100% mortality after a 10-minute exposure was 20 kgm. per hectare. A trial of dusting from a helicopter showed that the coverage was wider than from a conventional aircraft, and it was possible to treat 78 hectares per hour. Mortality ranging from 0 to 56·7% was observed among ticks placed for 24–48 hours in contact with intact sections of 150 sq. cm. area cut from the forest floor after dusting by the various methods. The epidemiological effectiveness of tick eradication by dusting was shown by the fact that the number of cases of tick-borne encephalitis in the region in the peak month of June, fell from 1,044 in 1956 to 276 in the following year.

D. J. Bauer

GRESSER, I., HARDY, J. L., HU, S. M. K. & SCHERER, W. F. **Factors influencing Transmission of Japanese B Encephalitis Virus by a Colonized Strain of** *Culex tritaeniorhynchus* **Giles, from Infected Pigs and Chicks to Susceptible Pigs and Birds.** *Amer. J. Trop. Med. & Hyg.* 1958, July, v. 7, No. 4, 365–73. [14 refs.]

Culex tritaeniorhynchus laboratory-reared for 12 or more generations were fed on pigs experimentally infected with Japanese encephalitis virus (fourth mouse passage of a strain isolated from *C. tritaeniorhynchus* in Japan). They were fed on the second and third days after inoculation when the viraemia was 2·5–3·3 log, and after 18–20 days extrinsic incubation period transmitted virus to a pig, 2 black-crowned night herons, 6 chicks, 2 plumed egrets and a great egret. Viraemia with or without antibody conversions was evidence of transmission. After a latent period virus became detectable in mosquitoes 5–9 days after feeding, but they were frequently unable to transmit virus until about the fifteenth day. Only 3 of 23 groups of mosquitoes were able to transmit to chicks before the fifteenth day, compared with 17 of 25 after the fifteenth day. Rates of transmission depended on the titre of virus in the ingested blood: they ranged from 92% with a viraemia of 3·3 log to only 17% with a viraemia of 0·4 log. After less than 25 days' extrinsic incubation less than half of the mosquitoes shown to be infected successfully transmitted virus, but little difference could be found in the amount of virus in those which did or those which did not transmit. *C. E. Gordon Smith*

HAMMON, W. McD, TIGERTT, W. D. & SATHER, G. E., with T. O. BERGE & G. MEIKLEJOHN. **Epidemiologic Studies of Concurrent "Virgin" Epidemics of Japanese B Encephalitis and of Mumps on Guam, 1947–1948, with Subsequent Observations including Dengue, through 1957.** *Amer. J. Trop. Med. & Hyg.* 1958, July, v. 7, No. 4, 441–67, 5 figs. [40 refs.]

Between December 1947 and March 1948 an outbreak of encephalitis occurred on Guam; it was due partly to Japanese encephalitis (JE) and partly to mumps. No previous epidemic of JE is known to have occurred and mumps had been absent from the island for a number of years. The incidence of mumps was at least 67 per 1,000.

There were 54 cases of encephalitis, classified as follows: 16 due to JE only, 17 due to mumps only, 15 due to JE or mumps or both, and 6 whose cause was not discovered (although later studies showed that at least some of them were due to JE). Sera from 29 of these patients in 1957 showed that none of those with mumps had JE neutralizing antibody, while 16 of 17 patients who had had JE infections had antibody. In all 5 fatal cases of JE the neutralizing index reached at least 50 before death. In non-fatal cases, however, 2 showed no rise in neutralizing antibody 10–11 days after onset.

Most of the residents of the island with JE were aged between 1 and 19 years; 11 of 27 cases occurred in children under 5 years, and only one patient was more than 20 years of age. Sera collected in early 1948 from the north of the island where no cases were detected showed JE antibody in 12–24% of age-groups except the 0–4 years age-group where there was none. In the south, where the epidemic occurred, antibody rates ranged from 40% under 5 years of age to about 70% over 9 years; there was evidence of inapparent infections. Collections of sera made in 1953 and 1957 revealed no evidence of infections with JE in children born since the epidemic.

Interpretation of the serology was complicated by the known occurrence of an extensive epidemic of dengue on the island in 1944; eradication of *Aëdes aegypti* from the island in 1945 appears to have prevented any infections since, in spite of the later introduction of *Aëdes albopictus* [*Trop. Dis. Bull.*, 1952, v. 49, 86]. After an extensive discussion the authors conclude that this was probably a virgin outbreak of JE due to introduction of the virus to the island shortly before the epidemic. The restriction of cases to subjects under 20 may either be characteristic of JE (as there are no known virgin outbreaks for comparison this is unknown) or due to pre-existing antibodies to the related dengue virus responsible for the 1944 outbreak. [This is a long and highly discursive paper which is impossible to reduce to an abstract of reasonable length. It contains many interesting details and should be read in full.]

C. E. Gordon Smith

PERARI, D. Andamento delle infezioni tifo-paratifiche nel comune di Perugia. (Sedicennio 1939–1954.) [**Survey of Typhoid-Paratyphoid Infections within the Municipal Territory of Perugia during the Period 1939–1954**] *Ann. d. San. Pubblica.* Rome. 1958, May–June, v. 19, No. 3, 623–41, 3 diagrams & 2 maps. [30 refs.] English summary (6 lines).

In 1954 the commune of Perugia, in the administrative region of Umbria, had a population of just over 100,000. During the 15-year period, 1939–1954, 1,891 cases of typhoid, 415 of paratyphoid B, and 39 of paratyphoid A, were notified. The paratyphoid cases were confirmed serologically, and the typhoid cases by laboratory (blood culture, and serology) and clinical methods.

The highest incidence was during the war in 1944, but there was also an epidemic [origin not stated] in 1952. However, the general incidence is high and there is a marked seasonal incidence, being lowest in March and rising to almost epidemic level from July to October.

More females are affected than males [though the histogram on p. 629 has the signs transposed, thus showing a preponderance of males]. The age-groups most affected are between 5 and 24, the 15–20 quinquennium having the highest incidence. During the 15-year period, 82 deaths occurred, and in 1954, 1 fatal case occurred out of 82 cases of all types notified.

The author blames the high incidence of the disease on the eating of raw vegetables fertilized with sewage, also milk, flies, and the lack of adequate water supplies, and makes recommendations for practical preventive measures to include better housing, and water supplies, and proper sewage disposal, especially in the outlying areas of the commune outside the city.

W. K. Dunscombe

HORN, K. Zur Epidemiologie des Typhus und Paratyphus in den Jahren 1945 bis 1956 unter besonderer Berücksichtigung der Dauerausscheider. [**The Epidemiology of Typhoid and Paratyphoid in the Years 1945 to 1956 with particular reference to Chronic Carriers**] *Ztschr. f.d.g. Hyg. u. ihre Grenzgebiete.* Berlin. 1958, Jan.–Feb.–Mar.–Apr., v. 4, Nos. 1/2, 59–67, 4 figs. [21 refs.]

The material on which this study was based consisted of about 2,500 notified cases of typhoid and paratyphoid B fevers which occurred in the city of Leipzig and its surrounding district in the period 1947–1956. A few sporadic cases of paratyphoid A and 1 of paratyphoid C also occurred. During the period under review there was a considerable reduction in morbidity and mortality, which is described. A table sets out some particulars of the epidemics of these infections during the period 1945–1956, which include the numbers of cases and the source and the vehicle of transmission of the causative organisms.

The importance of the chronic carrier as the source of the organisms in these experiences is stressed. In December 1956 the numbers of known carriers were 137 typhoid carriers—18 male and 119 female, and 109 paratyphoid carriers—20 male and 89 female. These figures are discussed. In the last few years the number of known paratyphoid carriers has tended to increase, which may be the result of better bacteriological and serological examination and of the legal measures for the control of the carrier. Patients who continue to excrete typhoid or paratyphoid organisms for more than 10 weeks after fever has disappeared, and also other healthy persons who have been found to be excreters, must be notified as chronic carriers to the authorities. These chronic carriers must be examined bacteriologically every 3 months when 3 control examinations are carried out in a period of 1 week. Only after 24 negative control examinations are such persons struck off the list of chronic carriers.

The experience with carriers is analysed and discussed and it is also mentioned that persons wishing to be engaged in the handling of food, in water works and certain other occupations, must be submitted to bacteriological examination, which includes the Vi-test, before engagement. *M. E. Delafield*

Havlík, J. & Potuznik, V. Die Dynamik des Titers der kompletten und inkompletten O (9,12)-Antikörper im Verlauf einer Chloramphenicolbehandlung des Bauchtyphus. **[The Levels of Complete and Incomplete O(9,12) Antibody during Chloramphenicol Treatment of Typhoid Fever]** *Ztschr. f. Immunitätsf. u. Exper. Therap.* 1958, Feb., v. 115, No. 2, 143–59. [46 refs.]

The introduction of chloramphenicol has greatly complicated the cultivation of typhoid bacilli from patients with enteric fever, and serology has become correspondingly more important. The authors have investigated by serial agglutination tests the H and O titres and also the titres of incomplete O antibody in a series of 44 typhoid patients, comprising 20 males and 24 females; 16 were children under the age of 14 years.

Early administration of chloramphenicol greatly lowered the O titres recorded; in some patients no O antibodies developed, in others their appearance was delayed. Incomplete antibody levels were consistently higher than the ordinary O antibody levels and in patients with low or non-existent O titres were a useful guide to progress in convalescence. If antibodies were already present at the beginning of chloramphenicol treatment, the titres either rose thereafter or remained unchanged, but only rarely fell. Higher antibody levels, persisting long into convalescence, were characteristic of patients with complications. Thus, serial agglutination tests provided a sensitive index of the activity of the infective process. *B. Moore*

Giglioli, G. **Post-Mortem and Histo-Pathological Notes on Twenty Fatal Cases of** ***Bact. paratyphosum*** **C Infection in British Guiana.** *West Indian Med. J.* 1958, Mar., v. 7, No. 1, 29–38, 4 figs. on pl. [14 refs.]

This article refers back to the days of epidemic prevalence of *Salm. paratyphi C* (Hirschfeld's bacillus) in British Guiana in 1927–1930. Clinical and epidemiological details are recalled [see *Trop. Dis. Bull.*, 1930, v. 27, 564; *ibid.*, 1931, v. 28, 42; *ibid.*, 1933, v. 30, 52; *Bulletin of Hygiene*, 1933, v. 8, 836], and the picture is here completed by the author's observations on 20 autopsies, probably a unique experience.

In general the viscera showed the same signs of a septicaemia as are evident in typhoid fever, but there was never intestinal ulceration, and hyperaemia of the distal part of the ileum was noted in only 7 cases. The most striking additional findings were: (1) lobar, bronchogenic or congestive pneumonia in all but 2 cases; (2) localized suppuration from which the infecting organism was recovered in pure culture, in sites determined by previous disease, *e.g.* in renal cysts, in the gall-bladder, at the site of a quinine injection, and in previous amoebic abscesses of the liver. In 9 of the 18 cases studied histologically, colony-like masses of bacteria were seen in the small vessels of the liver, kidney and spleen. That these collections were found in bodies only a few hours after death, and that bacterial cultures from the affected organs yielded pure growths of Hirschfeld's bacillus, confirmed the author's belief that they originated during life.

The paper contains a well-founded warning that paratyphoid C often eludes diagnosis, partly because the most conspicuous lesion is so often in the lungs, and the author recommends a wider use of routine blood culture, and bacterial cultures from the viscera post mortem, and from the pus of abscesses incised surgically. *Alan B. Raper*

Miller, F. M. & Freedman, B. **An Epidemic of Enteritis laid to Cross-Connection.** *Pub. Health Rep.* Wash. 1958, July, v. 73, No. 7, 658–61, 1 map & 1 chart.

This is a detailed account of the extensive investigation which was undertaken to discover the cause of an epidemic of 72 cases of enteritis in a population of about 125 persons in 27 households. 56 of these cases occurred between August 9th and 13th, 1956. No positive evidence that the causative agent was bacterial or viral was obtained.

From the data obtained in the investigation it is considered that the public water supply was the "initiating factor" of the epidemic. It was found that there was a cross-connexion between a lawn sprinkling system and the public water supply. The lawn sprinkling system was in the garden of a private house with 2 lawns. The rear lawn had for years been supplied with water drawn from a bayou [a marshy offshoot of a river] which was distributed by pump. Later the front lawn was provided with an underground sprinkler system which drew water from the city supply. A year after this the householder installed an automatic time clock system and a booster pump to use bayou water for his whole sprinkler system. Unfortunately, no inspection of the set up of the system by the city plumbing inspector was requested. When the front lawn sprinkler was connected to the bayou water system, the bayou water was not completely cut off from the city water main and only a manually operated valve intervened between the city water at a pressure of 58 pounds and the sprinkler line in which the pressure was 65 pounds. Shortly before the epidemic was known to have started a sewer line quite close to the bayou had broken and investigation proved that sewage had drained into the bayou.

M. E. Delafield

HOPKINS, E. J. **An Outbreak of Epidemic Vomiting.** *Med. Officer.* 1958, Sept. 12, v. 100, No. 11, 181–3, 1 fig. [25 refs.]

Many outbreaks of epidemic vomiting have been described [this *Bulletin*, 1953, v. 28, 185, 424, 1027; 1954, v. 29, 462; 1955, v. 30, 761; 1958, v. 33, 447] and different authors have found these outbreaks to vary considerably in some respects. The outbreak here recorded was in a co-educational boarding-school for children, over 11 years of age, of British personnel near Plön in North Germany. There were 50 cases of the disease in the school which comprised 5 " houses " each of which accommodated about 60 boys and 60 girls. The majority of the illnesses occurred during the last 2 weeks of January and the first 2 weeks in February 1956. Vomiting (37 cases) was the most prominent feature. Abdominal discomfort was a symptom in 27 cases. Diarrhoea of very mild character occurred in only 2 patients. 17 children had temperatures of 99°F. or more. There was rapid recovery usually within 24 hours. The incubation period was probably about 2 days.

There is a considerable discussion of other similar epidemics of gastro-enteritis and of epidemic vomiting in general practice and " it is suggested that the variations in clinical picture could be explained by postulating the existence of several strains of virus ".

M. E. Delafield

TUBERCULOSIS

LINDIG, W. Die Tuberkulose in der Begutachtung als Berufskrankheit. [**The Assessment of Tuberculosis as an Occupational Disease**] *Ztschr. f. ärztl Fortbildung.* 1958, July 1, v. 52, No. 13, 568–74. [35 refs.]

This paper deals with some of the difficulties encountered in assessing claims for the recognition of tuberculosis as an industrial disease.

There is general agreement that tuberculosis is commoner in contacts of known cases than in the general population and also that it is commoner in the personnel of tuberculosis hospitals than of general hospitals. These and other reported facts form the basis for classifying tuberculosis as a compensatable occupational disease.

The main criterion to be employed in judging the validity of a claim is whether there has been risk of tuberculous infection in the course of the claimant's employment, and the assessor has only to determine whether such risk is peculiar to the occupation and whether the claimant was in fact exposed to the risk.

It can often be very difficult to be sure that the claimant has run greater risk than that run in casual contact within the general community but there is no doubt in such cases as where a nurse or doctor is dealing with patients suffering from open tuberculosis. The question is less easily answered when patients with closed or extrapulmonary tuberculosis are concerned. The infectivity of children with primary tuberculosis is a moot point.

The risk run by laboratory and radiography technicians is less than that run by nurses but no general rule can be applied, as it is often difficult in an individual case to get a clear picture of the extent of the risk, and occasionally it is necessary to view the *locus.* Pathological workers, especially those engaged in handling body tissues, are exposed to a high risk of infection.

In order to assess the degree of risk it is necessary to consider not only sources of infection but also the intensity and duration of contact and the state of the claimant in regard to such matters as tuberculin allergy. The assessor must also have a knowledge of the development of tuberculosis and the conditions in which primary, re-infection, superinfection and exacerbation occur. These terms are defined in detail and discussed at length. The manifestations of extrapulmonary disease occur at different intervals after primary infection. WALLGREN'S " timetable " [this *Bulletin*, 1949, v. 24, 187] for these is quoted.

The question of bovine infection is discussed and it is pointed out that it may be transmitted not only by milk but also by contact with tuberculous cattle and inhalation of infected matter. It is not yet known with certainty if superinfection with bovine tubercle bacilli can occur in a person already infected with human bacilli or if the reverse process is possible.

H. G. Calwell

SPRINGETT, V. H., ADAMS, J. C. S., D'COSTA, T. B. & HEMMING, M. **Tuberculosis in Immigrants in Birmingham, 1956–1957.** *Brit. J. Preventive & Social Med.* 1958, July, v. 12, No. 3, 135–40.

The matter of tuberculosis in immigrants to Great Britain has received attention in the past few years both in Parliament and in medical literature [this *Bulletin*, 1958, v. 33, 566]. The authors have now made a preliminary study of the problem in Birmingham (population 1,100,000).

The place of birth of every person notified as having tuberculosis in 1956–57 was ascertained. 2 immigrant groups, Irish and Asian, were large enough to justify further study, and although West Indian patients were fewer their records were analysed also. The results were:

Place of Birth	*1956*	*1957*
Great Britain	930	690
Ireland	127	128
Asia	49	74
West Indies	9	12
Miscellaneous and not ascertained	21	69
Totals	1,136	973

The estimates of population by places of birth are subject to such large errors that it was considered impracticable to calculate notification rates from them. Notification figures are known precisely; it was therefore decided to calculate from these figures the population from which each racial group would have been drawn had all racial groups experienced the same notification rate. The age-sex distribution of population at the 1951 census was used. The findings were:

Place of Birth	*Probable Population in 1956–57 (a)*	*Expected Population (b)*	*Ratio b:a*
Ireland	45–70,000	109,000	2:1
Asia	8–11,000	45,000	6:1 to 4:1
West Indies	20–25,000	9,000	1:2 to 1:3

These comparisons show that "it seems fairly certain" that there is an excess of notifications in the Irish and Asian groups. There is no evidence at all of any such excess in the West Indian group. The Irish notifications are about double what might be expected and total 128 per year, about 65 excess notifications. The Asian excess is about 50 cases per year. These 2 groups together contribute an excess of 115 cases or about 10% of the total notifications each year.

The radiological type and extent of disease at notification were analysed and the duration of stay in England before notification was ascertained. The findings led to the conclusion that the excess in Irish immigrants was probably due to the migration of uninfected young adults into a relatively more infectious environment. BCG vaccination before leaving Ireland is the appropriate protective measure. The excess in Asian immigrants is due to previously existing tuberculosis which would be detected by routine X-ray examination before entry to Great Britain. Provisional figures for the first half of 1958 show that the proportion of Asian-born persons among the newly notified in Birmingham is still rising. *H. G. Calwell*

WATSON, W. N. B. **X-Ray Examination of School Teachers in Edinburgh.** *Pub. Health.* 1958, Oct., v. 73, No. 1, 22–8, 1 fig.

It was recommended by the Joint Tuberculosis Council of Great Britain in 1948 that persons whose employment brings them into close contact with groups of children should have an X-ray examination of the chest annually. Such schemes have been introduced here and there, and this paper reports on the working of the Edinburgh scheme.

It was introduced on the 1st January 1953 and provides for the annual X-ray examination of all teachers on permanent appointment who accept it. A teacher found to have pulmonary tuberculosis [and excluded from work] is entitled to receive sick pay on the full scale of salary for a maximum period of 12 months followed by a further maximum period of 6 months on half salary.

The results of the 1st year's examination were:

Eligible	*Accepted*	*Percentage accepted*	*Active pulmonary tuberculosis*	*Inactive pulmonary tuberculosis*	*Other conditions*
2,384	1,945	81·5	4	17	8

In no subsequent year has active pulmonary tuberculosis been found in a teacher.

The acceptance rate of 81·5% in 1953 fell to 77·7% in 1955 instead of improving, but after the provision of mobile X-ray vans which visited schools the rate rose to 91·4% in 1957 (men 95% and women 89·9%).

Reasons why teachers refused to enter the scheme were examined, and it was found that those unwilling to accept examination could be grouped into 4 classes:

(1) Objectors on religious or other grounds.

(2) Those afraid of the dangers of radiation.

(3) Those held back by apathy or ignorance.

(4) Those (the largest number) put off by reported defects in administrative arrangements such as delay or women being asked their age in the presence of other teachers.

The defaulter rate was higher in older than in younger teachers, being 1·6% in men aged 20–30 years and 12·2% at 50–60. The respective rates in women were 2·4% and 16·2%. It is hoped that with the passage of time and the consequent replacement of the older uncooperative teachers by more cooperative successors the rate of default will fall to a very low level. [A similar scheme was begun in Northern Ireland late in 1954. Active pulmonary tuberculosis was discovered freshly in 14 teachers in the 1st year, in 13 in the 2nd and in 9 in the 3rd year, rates of 1·9, 1·7 and 1·5 per 1,000 teachers examined respectively. The number of teachers in the Northern Ireland scheme appears to be about 3½ times the number in the Edinburgh scheme but the number of new cases of active pulmonary tuberculosis in 3 years is 9 times. The defaulter groups are, however, an unknown quantity as regards tuberculosis in both series.]

H. G. Calwell

PETERSEN, K. Zur Frage der Tuberkulose-Exposition in der Schule unter besonderen Bedingungen. **[Tuberculous Infection among Schoolchildren in a Poor Environment]** *Öffentl. Gesundheitsdienst.* Stuttgart. 1958, v. 20, No. 4, 133–40.

The school in which this study was made had 532 pupils of whom 20·3% came from a neighbouring hostel for homeless and poverty-stricken persons numbering some 1,100. Conditions among these people were bad and unhygienic, and tuberculosis was known to be more prevalent than in the general population.

In these circumstances it was considered desirable to find out if there were any undiscovered cases of infectious tuberculosis among the hostel children whereby other children attending the school might become infected. It was already known that the (Moro) reactor rate in hostel children entering school was 3 times that of all children entering.

An X-ray and tuberculin survey was therefore carried out. 362 of the 532 pupils attending were examined by X-rays; 103 were already under the supervision of a tuberculosis or chest physician, and the remaining 67 included some defaulters but the majority were excluded from the present examination because they had lately been examined as school-leavers. None had been found to have active tuberculosis.

351 children were found to have normal skiagrams and were not examined further; 11 were referred to the tuberculosis service for further examination and none was found to have active tuberculosis.

38 of the 103 children already under supervision came from the hostel so that although the proportion of hostel children in the school was 20·3% they accounted for 36·9% of the tuberculous group.

The Moro patch test was completed in 468 of the 532 children. The total reactor rate was 24·6% but it was 43·3% in the 83 hostel children compared with 20·6% in the others. This points to a high rate of infection of the children from the hostel.

The percentage of hostel children in the various classes was analysed and found to range from 6·5 to 30·7% compared with 20·3% of the whole school. The observed percentage of reactor children from ordinary homes was closer to the expected figure in each class showing that the reactor rate in a class did not depend on the number of hostel children in it and that the hostel children attending the school were not a special danger to the others. This finding speaks well for the efficiency of the tuberculosis and school health services.

The trustworthiness of the Moro patch test was examined. It was possible to get the records of earlier Moro tests of 253 of the 352 children now found to be Moro negative, and it was found that 10 (3·96%) had previously been recorded as reactors. This rate of discrepancy is similar to that found in other surveys quoted; it could be due to natural reversion or faulty technique in the test. *H. G. Calwell*

HÄRÖ, A. S. & PÄTIÄLÄ, J. **Trends in Tuberculosis Mortality and Morbidity in Finland and in Helsinki, 1900–1956.** *Acta Tuberculosea Scandinavica.* 1958, v. 35, Nos. 3/4, 217–46, 19 figs. [24 refs.]

The purpose of this epidemiological investigation was to study the changes in tuberculosis mortality and morbidity in the city of Helsinki [population in 1953, 394,500], to compare tuberculosis mortality in Helsinki and in Finland [pop. 4,116,000] as a whole and to reconstruct the trend of morbidity in the whole country. In the absence of sufficient accurate morbidity data for the entire country it was necessary to use chiefly the morbidity data for Helsinki only. Only pulmonary tuberculosis was considered.

In the period 1900–1955 the mortality rate declined generally. It rose in males during the wars of 1914–18, 1939–40 and 1941–44 and fell rapidly though unevenly after 1947. The rate in females showed a similar trend up to 1939–44 during which period it continued to decline. Mortality in children aged 0–14 years declined throughout the period and during the past few years has been near zero.

Age and sex-specific death rates for 1930–55 were calculated. It was found that the younger the age-group the greater was the improvement. The rate in females under 30 was generally higher than in males until the end of the 1930s since when male mortality in all age-groups has been higher than that of females. The rapid improvement in death rates which was seen after the advent of modern methods of treatment, especially chemotherapy, appears to have slowed down or even to have ceased.

In the country as a whole tuberculosis is now nearly non-existent as a cause of death of infants and young persons, and a rapid improvement among middle-aged persons may be expected. On the other hand mortality remains high among old persons, especially among men.

Mortality in Helsinki was then studied. The general picture was found to be approximately the same as for the whole country. Female and child mortality appeared to have been less influenced by the wars than it had been in the entire country. Male mortality resembles that in the whole country and although the wartime increase was more marked the decline in recent years has been more abrupt. Analysis by age and sex showed that the mortality in the groups 10–19 and 20–29 years was lower than in the entire country but the situation was reversed in the other age-groups. During the 1930s and 1940s the rate in women was lower in Helsinki than in the whole country and among children it improved more rapidly.

The number of cases of tuberculosis diagnosed yearly in Finland has declined during the post-war years. In all age-groups below 70 the attack rate in men in Helsinki is above the average for the entire country but the age distribution is generally similar. The rate rises sharply to the age of 25, then declines somewhat but rises at ages over 50. Differences between the figures for Helsinki and Finland are not seen to the same extent in female cases. The highest attack rate is seen at 20–29 years. In all age-groups above 15 the rate in women is less than in men, and the difference increases with age. In Helsinki this difference is not clearly seen until after the age of 30.

Tuberculosis morbidity in Helsinki was studied for the period 1909–56. The case rate shows increases and decreases which are much greater than those seen in mortality rates. They have been influenced by the introduction of new diagnostic methods such as miniature mass radiography, but the peaks coincide with years of war and economic depression. Male morbidity still appears to be at a higher level than at the beginning of the century. The case rate among women has generally been about one-half of that among men. In the 1930s there was a sharp rise in the case rate among women but the effect of the wars was relatively small. The rate in children rose in the

1920s and during the war but the increase ceased in 1946, and since 1947 the decline has been rapid. The decrease coincides with the relief of wartime shortages, the introduction of specific drugs and the extension of BCG vaccination.

The (adjusted) mean age at onset of persons over 15 years has remained in Helsinki almost unchanged for nearly 50 years. On the other hand, the age at death has increased considerably.

The findings are discussed. The authors estimate that the present favourable trend will continue for at least a few years. The ageing of the whole population is likely to cause a marked rise in the number of old male patients accompanied by a relative decrease in female cases. The slowing down in the decline in mortality is in the authors' opinion only temporary. The number of persons on the tuberculosis registers has not yet begun to decline. *H. G. Calwell*

VARPELA, E. **The Influence of Migration upon the Course of Tuberculosis in Cities. The Distribution according to Birth-Place of the Tuberculosis Mortality in Helsinki during the Years 1949–1952.** *Acta Tuberculosea Scandinavica.* 1958, v. 35, Nos. 3/4, 275–89, 1 fig. [15 refs.]

During the period 1949–52, 1,247 persons died of tuberculosis in Helsinki of whom only 315 (25%) had been born in the city and the remainder elsewhere. The high proportion of immigrants in the return is partly explained by their numerical excess in the population of Helsinki, only about 40% of the inhabitants in 1950 being natives. Nevertheless, even when allowance is made for the disproportion, it is found that the tuberculosis mortality rate in immigrants to the city is about twice that in natives (42·9 against 22·3 per 10,000).

Causes of the high tuberculosis mortality among immigrants were sought. It was seen that there was a greater proportion of persons of middle and old age among immigrants than natives, and since tuberculosis mortality is concentrated in the higher age-groups there were more deaths among immigrants than natives. When compensation was made for the age factor it was found that the mortality rates in natives and immigrants were 22·3 and 21·3 respectively.

The influence of change of environment was studied by comparing tuberculosis mortality rates in immigrants in Helsinki with those in persons of the same ages who stayed in their native regions. The rates were: men 90·2, women 24·7, and men 66·6, women 35·2 per 10,000 respectively. The high rates in immigrants could be attributed to the additional risks of infection and other stresses connected with migration. The apparent different effect of city life on the mortality rates in men and women was considered possibly to be due to selection in that tuberculosis develops in women at an earlier age than men and the women have had "stronger tuberculosis selection" before emigration to Helsinki.

There was evidence that the city environment as such is unfavourable to those born in rural areas, and the observed differences in the degree of severity of the disease and its incidence between the groups of inhabitants of Helsinki of different origin, *i.e.* between those born in cities and those born in rural regions, could in part reflect differences in their hereditary resistance to tuberculosis. *H. G. Calwell*

FOVINO, G. N. Due episodi di contagio tubercolare in ambiente famigliare e scolastico. [**Two Tuberculous Episodes**] *Lotta c. la Tubercolosi.* 1958, June–July, v. 28, Nos. 6/7, 630–44, 1 fig. [32 refs.] English summary.

From the Venice Provincial Tuberculosis Association the author reports the following 2 incidents, one in a family, and the second in a school.

A child accompanied by his father attended the tuberculosis dispensary and was found to have a primary complex. His father was then found to have a cavity in the left lower lobe, sputum positive. Contact tracing then produced the information that 19 persons in 3 related families lived in one house, which itself was unsatisfactory. The man with the cavity was the nephew of 2 adult males, the respective heads of the other 2 families. Altogether, the patient's wife and 11 out of 12 children in the house developed various stages of tuberculous infection from a primary complex to miliary tuberculosis (his wife); there were 2 cases of tuberculous meningitis, 1 of which, in a 7-months-old baby, was fatal.

Preliminary skin testing before BCG vaccination was carried out at all the elementary schools in Venice province. In 1 school 5 out of 18 pupils in 1 class were ++; 4 were absent, and 2 had a primary complex. 1 of the absent children was admitted to hospital with typical symptoms and found to be sputum ++. The 3 other absent children all had a primary complex. The teacher was negative; and all the remaining children in the school were negative, except the patient's brother who, though not in the same class, had a primary complex, while a girl, who sat at the next desk all the time the patient was in the class, was not affected. A family source was excluded.

The author considers that when using the VDS test [presumably a patch test] for selection for BCG vaccination, not only the frequency of reaction but more especially the *type* is very important as regards a suspicion of infection. [He differentiates an immune reaction from an allergic reaction, but does not here describe them.] He emphasizes the importance of contact tracing and suggests that if a case is found in a school, not only should the VDS test be carried out but all pupils should be examined by X-ray as well. *W. K. Dunscombe*

KLEINSCHMIDT, H. Zur Bekämpfung der Kindertuberkulose. Probleme der Erfassung, Behandlung und Vorbeugung. [**Tuberculosis in Childhood: Problems of Diagnosis, Treatment and Prophylaxis**] *Deut. med. Woch.* 1958, Sept. 5, v. 83, No. 36, 1533–8, 1586–7. [40 refs.]

Both morbidity and mortality from tuberculosis have declined in children in the Federal German Republic since 1948 but in spite of this favourable trend tuberculin surveys have shown a reactor rate of 40–50% in children aged 14–15 years in some provinces compared with 5% in Stockholm. Morbidity in children of school age is low but children's sanatoria are admitting more young children than previously.

The number of persons with infectious tuberculosis has decreased little; 70–75% are outside institutions, 40% are still infectious on discharge from the sanatorium and 30% have no separate sleeping accommodation.

The diagnosis of tuberculosis in children may be made by the systematic examination of contacts (in the widest sense) of tuberculous patients whether their disease is "open" or "closed". Children in schools or other institutions should also be examined routinely, with the tuberculin test instead of radiography. A warning is given against omitting the tuberculin test in children with hilar enlargement in whom the demonstration of a negative reaction will exclude an erroneous diagnosis of tuberculosis.

Tuberculous infection is often accompanied by apparent good health, and (apart from tuberculin conversion) its first sign may be meningitis or miliary disease. Consequently, if early diagnosis is to be made, it is advisable to carry out serial tuberculin testing not only of all contact children but also of others as opportunity offers. Reactors should be examined by X-ray. Radiological findings and their interpretation are discussed.

It is axiomatic that treatment should follow diagnosis as soon as possible. Where tuberculosis is concerned the earliest indication is tuberculin conversion. VOLLMER [this *Bulletin,* 1957, v. 32, 939] has proposed that mothers in U.S.A. should test their infant children by a tuberculin patch every 3 months until conversion is detected. Kleinschmidt does not demand this from German mothers but he recommends that every child in the first 2 years of life who is found to be a reactor should be given specific chemotherapy even when there are no other signs of the disease. Some writers go further and recommend chemotherapy for all contacts as soon as a patient is found to have tuberculosis. This is a form of chemoprophylaxis, and isoniazid is employed, not so much for any effect on the primary lesion but to prevent the development of meningitis (which it does in most cases).

An argument against the treatment of contacts before the development of tuberculin sensitivity is the possible danger that by the effective suppression of the primary infection, resistance to later superinfection would not be elaborated. It is therefore recommended that only reactors be given chemoprophylaxis.

Generally the only indication for using isoniazid to prevent dissemination is when signs of tuberculous disease are present, especially hilar adenitis, pleurisy, early pulmonary infiltration or extrapulmonary lesions. In such cases the drug may have little effect on the primary lesion although it prevents dissemination. The best results are seen in meningitis and miliary disease where treatment has been started early. In cases of meningitis of doubtful cause isoniazid should always be given pending a definite diagnosis.

Kleinschmidt recommends BCG vaccination for all persons who are specially exposed to risk of infection, for the newborn and for school-leavers, but he emphasizes that vaccination is only one part of the machinery of the control and prevention of tuberculosis.

H. G. Calwell

HARDY, Janet B. [M.D.C.M.] **Tuberculosis in White and Negro Children. Vol. I. The Roentgenologic Aspects of the Harriet Lane Study.** pp. vii + 122, numerous figs. 1958. Harvard University Press, Cambridge, Mass., U.S.A. London: Oxford University Press, Amen House, Warwick Square, E.C.4. [$7.50; 60s.]

BRAILEY, Miriam E. [M.D., Dr. P.H.] **Vol. II. The Epidemiologic Aspects of the Harriet Lane Study.** pp. vii + 103, 8 graphs. *Ibid.* [$4.50; 36s.]

The path of the research worker who attempts to investigate the development and prognosis of pulmonary tuberculosis is hard. To obtain any results which will stand up to criticism, a very large number of patients must be observed over a long period. Removal of individuals, and lack of cooperation among patients, who feel well, though they may have tuberculosis, add to the difficulties. Results which are true for one race are not necessarily true for another. When once the study is opened, there is little scope for any alteration in the plan. Finally, the introduction of antituberculous drugs has completely altered the picture. It is against this background that the Harriet Lane study of tuberculosis in children must be assessed.

Starting in 1928, children were admitted to the study until 1944, and the follow-up was continued until 1950. 1,329 children were studied, of whom 437 were white, and 892 Negroes. This division reduces the numbers, but the results show that it is inevitable. The terms used are clearly defined, and weaknesses and difficulties are emphasized, rather than slurred over. The study is divided into the prognosis of tuberculous infection and primary tuberculosis, and the risk of development of "reinfection" tuberculosis. In the first, the danger of death, both in Negroes and whites, is much higher in children infected before the age of 3 years; 9% of the white children, and 22% of the Negroes, had died over a 15-year period, mostly of miliary and meningeal tuberculosis, against 0·8% of white, and 8% of Negro, children, where the infection was discovered between the ages of 3 and 15 years. Reinfection pulmonary tuberculosis developed in only 2 white children, 1 of whom died, against 32 Negroes, of whom 67% died. In the Negroes, especially in the older ages, there was a marked predominance of females. The author is rather more confident that progressive primary, and reinfection, lesions can be differentiated, than some workers would allow.

The study is reported in 2 volumes. The first is devoted to the radiological aspects. Practically every aspect of pulmonary tuberculosis in children is covered in a series of beautiful X-ray reproductions. This volume should be in the library of every large hospital for reference. The second volume is devoted to the epidemiological aspect, illustrated by a wealth of statistical tables.

It is difficult to praise either the work, or its presentation, too highly. It covers the "pre-drug" era, and in this respect many conclusions on mortality are probably obsolete. However, the work is very valuable, as the complications caused by drug treatment will make similar studies impossible in the future. It will be very interesting to compare the findings with a similar, long-term follow-up from the Brompton Hospital, London, which will appear shortly. The study must be read *in extenso* by all interested in the subject. *F. H. Young*

LESTER, C. F. & ATWELL, R. J. **The Tuberculin Skin Reaction in Active Pulmonary Tuberculosis.** *Amer. Rev. Tuberculosis.* 1958, Sept., v. 78, No. 3, 399–402.

The skin reaction to tuberculin is routinely tested in all patients admitted to the Ohio Tuberculosis Hospital. The Mantoux test is used and the criterion of a positive reaction is induration of 5 mm. or more [after an unspecified interval].

The first dose used is 0·00002 mgm. (1 TU) of PPD followed by 0·0001 mgm. and 0·005 mgm. of PPD and 1 mgm. of OT until a reaction is obtained or the patient is clearly a non-reactor.

In the present study the records of 1,000 consecutively admitted patients [with pulmonary tuberculosis] were examined, of whom 624 had radiological evidence of the disease and from whom tubercle bacilli were recovered by culture at least once during their stay. 21·7% failed to react to the first test (0·00002 mgm.) and 8·7% to 0·0001 mgm.; 4 patients reacted to 0·005 mgm. but no other tests were recorded for them, and 4 patients (0·6%) failed to react to 0·005 mgm. of PPD and to 1 mgm. of OT on admission to hospital.

It was thus seen that if only first strength PPD had been used 21·7% of the patients would have been classified as non-reactors and if the next strength only had been used 8·7% would have been classified as non-reactors. Of the 4 patients who failed to react to any test all had overwhelming infection and were moribund on admission. All became reactors [to what dose?] within 2 months after the institution of antituberculous therapy.

The findings indicate the necessity for the continued use of the higher doses of tuberculin in the diagnosis of pulmonary lesions. The possibility of non-specific reactions to high doses of tuberculin (0·005 mgm. of PPD or 1 mgm. of OT) must be kept in mind, "but it is difficult to decide how such reactions can be interpreted". *H. G. Calwell*

COTTER, D. J., FOREMAN, H. M. & SEAL, R. M. E. **The Pathology and Bacteriology of Resected Tuberculous Lung Lesions After Chemotherapy.** *Thorax.* 1958, June, v. 13, No. 2, 150–8, 14 figs. [13 refs.]

In the opinion of the authors, this study on 240 resection specimens from 218 patients shows that chemotherapy has only a slight influence on the consistency of caseous tissue, but that it has a marked tendency to collagenize the capsule and cause a dramatic reduction in culturable bacilli in the lesions, and that quality as well as duration of the treatment and the size of the lesion also influence the bacteriology.

The patients were operated on during November 1955–November 1956 and their ages ranged from 19 months to 55 years, the majority being over 15 years. The duration of the disease ranged from 1–23 years, and tubercle bacilli had been recovered from 75% of the patients. 64% of the strains were tested for drug sensitivity, and 32% were resistant to one or more of the antituberculous drugs.

Although at the time of the operation, tubercle bacilli could be grown from only 6 of the 218 specimens, acid-fast bacilli were found in direct smears of 65% of the specimens. Positive cultures were, however, obtained from only 12%, and of the 200 specimens injected into guineapigs only 10·7% of the animals escaping intercurrent infections were positive. In only 2 instances was the culture negative and the animal test positive, but on 4 occasions the animal test was negative and the culture positive; these latter strains were isoniazid-resistant.

12 of the lesions were calcified, 142 were solid and 86 were pultaceous; there were slightly more calcified lesions in the cases classed as having had "A" chemotherapy, *i.e.* continuous therapy with combinations of antituberculous drugs for at least 8 months, than in the other patients. This relatively low incidence of calcified lesions indicates, however, that chemotherapy had no important influence on calcification.

87 lesions were surrounded by collagen only, 144 by collagen and a cellular zone, and 9 by a purely cellular zone. All the patients who had had "A" type of chemotherapy had lesions with collagen capsules, whereas those who had had good chemotherapy but for only 5 months ("D" type) or treatment with only 1 drug ("C" type) had lesions with cellular capsules.

The effects of chemotherapy on the bacteriology of the lesions were very clear-cut. After chemotherapy of the "A" type only 1 culture from the 41 patients was positive, although 50% had acid-fast bacilli present by direct examination, whereas after "B" type (good chemotherapy but for only 5–8 months) there were 8 positive cultures among the 76 patients, after the "C" type there were 13 among the 76 patients and after the "D" type there were 9 among the 24 patients. The greatest number of positive cultures of drug-resistant bacilli occurred among the patients who had had the "C" type chemotherapy. Abnormal morphology consisting of clubbed ends was seen in 40% of the positive cultures.

The percentage of specimens positive by direct examination increased in proportion to the size of the lesions, which suggests that the duration of treatment could be varied according to the size of the lesion. Pultaceous lesions yielded the highest proportion of positive specimens by culture, guineapig inoculation and direct examination.

Lesions limited only by a cellular zone were invariably positive by culture whereas those limited by collagen only, were invariably negative.

Only 26 of the patients had open cavities, which is considered to be a low proportion, and as only chemotherapy and posture are generally held to affect closure, and as little correlation was found between the type of chemotherapy and the state of the cavity, posture was considered to have been mainly responsible for the closing of cavities. Bacilli were more frequently present in blocked cavities than in open ones, suggesting that the former type of cavity is the more dangerous. *S. R. M. Bushby*

CHU, Erh-Mei, CHAO, Heng & CH'EN, Lun-Yuan. **The Clinical Significance of Round Foci in Pulmonary Tuberculosis.** *Chinese Med. J.* Peking. 1958, July, v. 77, No. 1, 49–62, 7 figs. (6 on 2 pls.)

This is the study of 215 cases of pulmonary tuberculosis with round foci. By the authors' definition the term was confined to foci 1 cm. in diameter or larger on the X-ray. Out of 198 round foci, 40 were thought to be filled cavities, 97 caseous pneumonic areas, and 61 cases were doubtful. Where the localization was determined, practically all were situated in the upper lobes and apical segments of the lower lobes. Less than 10% occurred in patients over 40 years of age. Hence the chance of these foci being carcinomas when occurring in these situations, and in patients under 40 years of age, was negligible. 28% of 198 cases deteriorated under observation; the chance of this occurring was nearly double in the filled cavity cases compared with the pneumonic type. The prognosis worsened with the original size of the focus. Cases with translucencies in the centre did not do worse than the average, but where the translucency was on the margin of the focus 60% deteriorated. In 45 patients resection was carried out without any serious morbidity or any mortality, and all have remained well until the observation period ended.

The number of tubercle bacilli found in the resected specimens was greater where the focus was liquid, and when the specimen was taken from the centre of the focus; but this finding was based on smears, and in the absence of cultures there is no information about their growth possibilities.

Antituberculous drugs were found to have little effect until the contents of the cavity were expelled; after this, improvement was often noticed. Advice is given on the handling of the various types of foci.

[This is an interesting paper, but findings which are obtained in tuberculosis occurring in one race are not always reproduced exactly in a comparable series drawn from a different race.] *F. H. Young*

See also p. 50. OOSTHUIZEN, **Certain Differences in the Radiological Appearance between the Lung Fields of the African and the European. A Preliminary Report.**

YEH, Tsung-Tien. **Tuberculosis of the Breast. Report of 25 Cases.** *Chinese Med. J.* Peking. 1958, July, v. 77, No. 1, 63–9, 5 figs. on 2 pls.

This article reports 25 cases of tuberculosis of the breast, and gives a general review of the condition. A short review of the pathogenesis is given. In 4 cases there was some lung involvement, but in none was this active, and in 20 there was involvement of the corresponding axillary lymph glands. In 18 cases the condition appeared during lactation or pregnancy. The cases are classified into nodular, confluent, scirrhus and other types. A competent account of the clinical condition is given, and it is noted that constitutional reactions are uncommon. Surgical extirpation of the diseased area or mastectomy, according to the degree of involvement, is advised, but the recommendation of antituberculous drugs for 7 days before the operation, and 1 month afterwards, seems hardly sufficient. The article is interesting but contributes little that is not already known. *F. H. Young*

VIALLIER, J., BERTOYE, A., CARRAZ, M. & COURTIEU, A. L. Variations du taux sérique des antienzymes streptococciques chez le cobaye normal et tuberculisé. [**Variations in the Concentration of Streptococcal Anti-Enzymes in the Serum of Normal and Tuberculous Guineapigs**] *C.R. Soc. Biol.* 1957, v. 151, No. 11, 1921–4.

The activities of antistreptokinase, antistreptolysin O and antihyaluronidase were studied by using the method similar to that of CHRISTENSEN, a modification of that of TODD, and a modification of that of SEASTONE and FABER, respectively, for the 3 estimations. 112 of the sera were from normal guineapigs, 111 were from animals which had been injected subcutaneously with specimens from tuberculous patients 45–60 days previously (Group 1 in Table), and 31 were from animals which had been inoculated intradermally with virulent tubercle bacilli 30 days previously (Group 2 in Table). The results are shown in the following table.

Antistreptokinase				Antistreptolysin O				Antihyaluronidase			
Range-units	Animals			Range-units	Animals			Range-units	Animals		
	Normal	TB(1)	TB(2)		Normal	TB(1)	TB(2)		Normal	TB(1)	TB(2)
0–150	84	102	26	0–80	81	54	21	0–10	83	109	29
150–300	8	7	4	80–120	18	17	5	10–20	7	2	1
300–600	6	2	1	120–160	1	16	4	20–50	4	0	1
600–900	3			160–200	0	8	1				
				>200	0	16	0				

High antistreptolysin O titres were apparently more common in the tuberculous than in the normal animals, and as haemolytic streptococci were isolated from the glands of only 16 of the 102 tuberculous animals, and as the antistreptolysin O content of the sera of these particular animals was not high, the high frequency was unlikely to have been due to a superinfection with these streptococci. *S. R. M. Bushby*

Bailey, K. V. **Pulmonary Tuberculosis in a Rural Area of Java and its Treatment with INH Alone.** *Med. J. Australia.* 1958, July 12, v. 2, No. 2, 42–9.

A description is given of the problem of tuberculosis in a rural area of Java. The difficulties arising from social conditions, and an inadequate supply of trained personnel and equipment, are discussed. Isoniazid is used of necessity by itself, and favourable results are reported. The author considers that the risks of drug resistance have to be taken, but thinks that they are less important from a practical point of view than is generally supposed. Some tables of results are given, but are of little statistical value. *F. H. Young*

Elling, R. H. & Simon, K. Zusammenhänge von soziologischen Faktoren und therapeutischem Erfolg bei tuberkulosekranken Kindern und Jugendlichen. **[The Relationship of Family Environment and the Results of Treatment of Children and Young Persons with Tuberculosis]** *Öffentl. Gesundheitsdienst.* Stuttgart. 1958, v. 20, No. 4, 140–45.

Elling, who describes himself as a sociologist and not a physician, conducted this enquiry during a visit to a children's sanatorium in Germany. It concerned 83 patients aged 12 to 21 years (average age 15½) who were being treated for post-primary tuberculosis.

The social background, the family environment, the personal character of the child and other intimate matters were the subject of questions. The data obtained from the answers were compared with medical data obtained from X-ray examination and clinical assessment of the patients over a period of 3–12 months.

The list of questions asked is not given but they must have been all-embracing and with little reticence on either side. For example it was elicited that 33 of the children came from families in which the parents were separated or in which there were foster or step-parents. Another piece of information was that some of the parents had previously been convicted, and "in 20% it was reported by the children that there was frequent strife between the parents or other factors which influenced family life unfavourably". The marriage was happy in only 40%.

The fathers' economic and cultural status, the family budget, the child's ambition or lack of ambition, his good or ill temper and his friendships ("How are you valued by your best friend and acquaintance ?") were also enquired into, and the data obtained from all the questions were analysed statistically and related to the degree of progress made. Progress was assessed by the results of radiological and clinical examination over a period of 3–12 months.

The findings are discussed without the emergence of any conclusion.

[It is most unlikely that an enquiry of this kind could or would be made in any hospital in Great Britain from a group of young patients including children. The questions asked, judging by the answers elicited, seem to have been of the muck-raking kind. One wonders if parental consent to the investigation was sought or obtained. The general permission to carry out necessary treatment that is usually sought from a parent when a child is admitted to hospital could hardly be extended to cover this form of "sociological" work. No useful purpose seems to have been attained by it.] *H. G. Calwell*

Ford, R. M. **The Chemotherapy of Tuberculosis in Infants: an Eight year Follow-up.** *Med. J. Australia.* 1958, July 12, v. 2, No. 2, 40–42. [17 refs.]

Following the findings, of the Adelaide Children's Hospital, that children under 3 years of age who were found to be infected with tuberculosis had a mortality rate of 35%, and a morbidity rate of 31% at the end of 5 years, the investigation reported in this paper was started. All children who were in-patients from 1947 to 1950 were Mantoux tested (1 in 1,000). 40 children (3 were lost sight of) were found to be infected, of whom 14 had no other evidence of tuberculosis than the positive Mantoux reaction. All received an average dose of 0·5 gm. of streptomycin in 4 divided doses for 6 weeks, 5 received in addition 2·0 gm. of PAS in 4 doses daily. The children were followed up for a minimum period of 8 years. Of 13 infants traced who had only a positive Mantoux test, all remained free of clinical tuberculosis; of 7 children who had in addition, hilar gland enlargement, 1 developed cervical adenitis, and 1 meningeal tuberculosis; 18 children had evidence of lung involvement; of these, 2 were lost sight of, 1 developed meningitis, 1 tuberculosis of the hip and 1 localized bronchiectasis. No death occurred in the whole series. In a rather long discussion, multiple drug therapy is advised for all infected children of this age-group. *F. H. Young*

Nitschke, A. Der Einfluss der Nebennieren-Rindenhormone auf den Verlauf der Miliar-Tuberkulose. **[The Influence of Adrenal Cortical Hormones on the Course of Miliary Tuberculosis]** *Deut. med. Woch.* 1958, Sept. 12, v. 83, No. 37, 1593–5, 1613–14, 1637–8, 4 figs. on 2 pls.

Encouraged by his success in treating tuberculous meningitis with cortisone in addition to streptomycin and isoniazid Nitschke used the same regime in miliary tuberculosis. The dosage of D-cortisone recommended is as follows:

20 days, 3 mgm./kgm.
20 days, 2 mgm./kgm.
20 days, 1·5 mgm./kgm.
30 days, 1·0 mgm./kgm.
10 days, 0·5 mgm./kgm.
10 days, 0·25 mgm./kgm.

During the period of treatment with cortisone leucomycin was also given in order to prevent purulent skin complications. Nitschke remarks that children tolerate the adrenal cortical hormones better than adults and if the dose is reduced gradually there is no need to give corticotrophin at the end of the course.

9 children with miliary disease received the above treatment, of whom 5 also had meningitis. The effect on their general condition was uniformly and quickly favourable. The period within which radiological clearing occurred did not depend on the severity of the disease, and even where the lesions had progressed in spite of chemotherapy cortisone was quickly effective.

Only 1 of the 9 children failed to make as good progress as the others and 46 days after the start of the treatment his miliary lesions, although regressing, were still clearly visible on the skiagram. He had received the lowest dosage of any child in the series and when it was increased rapid resolution occurred.

In the remaining cases the pulmonary lesions disappeared with such unexpected rapidity that X-ray examination was not always made soon enough to keep pace with the improvement.

Further confirmation of the good effect of cortisone was found by ophthalmoscopic examination. 3 of the children showed recent miliary dissemination in the retina which was already regressing in the second week of treatment leaving only faint scarring in the succeeding months. *H. G. Calwell*

VENEREAL DISEASES

BEERMAN, H. **The Problem of Syphilis Today.** *Arch. Dermat.* 1958, Aug., v. 78, No. 2, 174–80. [39 refs.]

The author concludes this review of recent literature with a quotation from REIN (*New York J. Med.*, 1956, v. 56, 2563): “we have the diagnostic tools and the therapeutic agents to control and even eradicate syphilis. But we are failing because of our own complacency about the disease, because of neglected educational programs, especially for teenagers, and because of lack of interest or funds to find and treat the affected persons”.

FRÖHLICH, W. **Progress in Syphilology.** *J. Formosan Med. Ass.* 1958, Apr., v. 57, No. 4, 247–54, 1 fig.

This article is the report of a speech delivered before the Formosan Medical Association.

It appears that syphilis presents a considerable problem in Taiwan, no less than 5% of pregnant women and 3·4% of blood donors showing reactivity to blood tests for syphilis; fortunately cardiovascular and central nervous syphilis appear to be much less common in Chinese patients than in white patients.

Most of the article is extracted from other publications; in turn are considered untreated syphilis, immunity in syphilis, quantitative serum tests, the value of cardiolipin antigens, the advantage of penicillin over metal therapy and the necessity for an anti-syphilis campaign to control the disease.

This contribution may have been of interest to its hearers but it contains nothing new and will appeal to few readers in other countries. *T. E. Osmond*

SCHNEEWEISS, U. Vorschläge zur Standardisierung der Komplementbindungsreaktion (KBR). [**Recommendations for Methods of Standardizing Complement-Fixation Reactions**] *Ztschr. f.d.g. Hyg. u. ihre Grenzgebiete.* Berlin. 1957, Nov.–Dec., v. 3, No. 6, 426–33, 1 fig. [15 refs.]

This paper is made up of the second and third sections of the author’s recommendations for a standard complement-fixation reaction, the first of which was reviewed in this *Bulletin*, 1958, v. 33, 838.

The main point made in this further contribution to the description of methods adopted is that freeze-dried complement prepared from solutions in veronal buffer can be used over a period of a month without serious deterioration or variation in the titre determined for the positive control serum.

An important advantage is that it is not necessary to make a preliminary estimation of complement activity each time the material is used and results as good as those given by the specially prepared samples of freeze-dried complement were obtained with the best commercial samples of dried complement. *J. W. McLeod*

FELKE, J. Epikritische Betrachtungen über die Kurzbehandlung der Syphilis mit Penicillin. [**Results of a Follow-up of 286 Patients with Syphilis after a Short Course of Penicillin**] *Deut. med. Woch.* 1958, Aug. 15, v. 83, No. 33, 1385–9, 1418.

Since 1948 the treatment of early syphilis at the Skin Clinic of the City of Wiesbaden has been exclusively by the American “rapid treatment” method with penicillin during a period of 10 to 15 days. Some particulars of this treatment are given as well as a description and discussion of the serological procedures which are employed. The main purpose of the paper was to present the results of a 2–8-year follow-up of 286 patients with early syphilis who were treated in this way. It was found that 27 of these required a second course of treatment—6 for definite re-infection, 6 for possible re-infection, 3 for clinical relapse and 12 for serological relapse. There is a considerable description of the clinical particulars found in the investigation and diagnosis of these relapses. The new and old methods of treatment of early and late syphilis are compared at some length. *M. E. Delafield*

HILLEMAN, M. R., GREAVES, A. B. & WERNER, Jacqueline H. **Group-Specificity of Psittacosis-Lymphogranuloma Venereum Group Skin Test Antigens in Lymphogranuloma Venereum Patients.** *J. Lab. & Clin. Med.* 1958, July, v. 52, No. 1, 53–7, 2 figs. [12 refs.]

This paper confirms and extends the observation that the effective component in the skin test antigen used in the diagnosis of lymphogranuloma venereum is of group specificity and that antigens similarly prepared from other members of the psittacosis-lymphogranuloma-venereum family are as effective in the Frei Test as one prepared from lymphogranuloma venereum virus. 6 viruses were used—lymphogranuloma venereum, ornithosis, psittacosis, meningo-pneumonitis, feline pneumonitis and mouse pneumonitis. Yolk sac suspensions were phenolized—0·5%—and held at 37°C. up to 8 weeks, inactivation being checked by passage in eggs. The antigenic content of the preparation was first determined by complement-fixation tests and it was then titrated in the skin of lymphogranuloma venereum patients in a dose of 0·1 ml. containing measured amounts of antigen in CFT units. The dermal activity of some of the heterologous preparations was slightly less than that of the homologous one though the difference was never great enough nor sufficiently constant to be of practical significance. [No reference is made to two pertinent papers by BARWELL, this *Bulletin*, 1952, v. 27, 1145 *bis*.] *S. P. Bedson*

ZOONOSES

In this section the abstracts are arranged as far as possible in the following order:—General; Anthrax; Brucellosis; Tularaemia; Leptospirosis; Ornithosis; others.

For such tropical diseases as Trypanosomiasis, Leishmaniasis, Rickettsial Fevers, Yellow Fever, Plague, etc., see TROPICAL DISEASES BULLETIN.

LOOSE, H. Zur Brucellose bei Mensch und Tier. [**Brucellosis in Man and Animals**] *Desinfektion u. Gesundheitswesen.* 1958, Aug., v. 50, No. 8, 125–7. [15 refs.]

In this paper the author gives some description of brucellosis, the 3 types of causative organism and the clinical picture of *Brucella abortus* infections in man and animals. In Germany the disease in man nowadays is practically never caused by drinking milk because almost all of it is given heat treatment in the dairies, but it occurs mainly in those who are in association with infected animals. The main purpose of the paper appears to be to draw attention to the infection by *Brucella melitensis* which was almost unknown in Germany up to a few years ago but made its appearance in the early 1950's. In the Pfalz region of Germany there occurred after the war an increasing number of cases of Malta fever in man. All the infected persons had had contact with sheep. Examination of 100 clinically suspected sheep herds, with a total of more than 20,000 animals, proved that about 50% of the herds were infected. It would appear that infection had been acquired during the Great War from association with the meadow lands of Southern France where *Brucella melitensis* infections have been known to exist for years. These meadow lands were used by German shepherds and their flocks during the war and in this way and also by troop movements and other means the herds became infected and then carried the infection into south-west Germany. There is a description, with some reference to actual cases, of the clinical picture of Malta fever in man and in animals. The prevention and control of the infection as well as bacteriological and serological examinations used in diagnoses are described and discussed.

M. E. Delafield

NEYMAN, K., DAWIDOWSKA, Irena & WTORKOWSKA, Lucyna. Zakazenia bruceloza wśród pracowników przemysłu mleczarskiego i zlewni mleka województwa poznańskiego. [*Brucella* **Infection in Dairy Workers**] *Przegląd Epidemiol.* Warsaw. 1958, v. 12, No. 2, 147–50.

The English summary appended to the paper is as follows:—

"794 persons employed in dairies and creameries were examined for brucellosis by agglutination—CF— and Burnet—test. In 20.3% of them positive results were found. The number of people showing positive results increased in proportion to their age, and to the time they were employed. In connection with the latter one may consider it an occupational infection. In none of the persons examined was active brucellosis found. The commonly used 'brucelin PD'-Preparation gave satisfactory results with no strong allergic reactions in mass-application of the Burnet-test."

WUNDT, W. Methodik und Verwertbarkeit serologischer Verfahren zur Ermittlung des Erregertyps bei Brucellosen. [**The Technique and Reliability of Serological Procedures for determining the Microorganism Present in** *Brucella* **Infections**] *Ztschr. f. Hyg. u. Infektionskr.* 1957, v. 144, No. 3, 229–37. [10 refs.]

The stimulus for this work has arisen from the recent appearance in West Germany of *Brucella melitensis* infections in addition to the *Brucella abortus* infections which have been recognized for some time.

In view of the difficulty of direct isolation of the organisms, the possibilities of recognizing the type of infection by carrying out agglutinations with patient's serum saturated with *Brucella abortus* and *Brucella melitensis* respectively has been investigated.

The difficulty in these observations is that the line is rather finely drawn between absorbing all agglutinins when using excess of bacteria in the absorption or failure to get differential absorption of the homologous antibody because too little bacterial suspension is used. A very elaborate technique is therefore recommended for splitting the patient's serum into 4 or 6 lots which are saturated with graded suspensions of *Brucella abortus* and *Brucella melitensis* respectively. It is possible in this way to get, in many cases, sera which are capable of agglutinating only one of these strains.

These examinations are more likely to be valuable if the primary titre of the serum for both strains is fairly high and especially when intermediate strains are met which, when isolated, show the biochemical characteristics of *Brucella melitensis* but, by absorption of the serum of the animal from which they come, would appear to be *Brucella abortus*. Such strains are rare but the author is convinced that this complicated procedure of determining the agglutinin content of the sera of man or animals infected with *Brucellae* can be of value in investigating the origin of cases of *Brucella* infection. *J. W. McLeod*

VEST, E. D. & MARCHETTE, N. J. **Transmission of *Pasteurella tularensis* among Desert Rodents through Infective Carcasses.** *Science.* 1958, Aug. 15, v. 128, 363–4.

This study was conducted in an attempt to determine the extent to which desert rodents may feed on animal matter and the potential importance of ingestion of infective flesh as a means of transmission of tularaemia among desert rodent populations. 11 species of rodents native to the Great Salt Lake in Utah were used and the infective agent was the Schu A strain of *Brucella tularensis* cultured in a modified casein partial hydrolysate liquid medium, the LD100 dose of which was 1 to 10 organisms for deer mice.

Healthy deer mice were inoculated intraperitoneally with approximately 1,000 organisms and kept until dead or moribund; a body was then placed with each experimental animal from which food and water had been withheld for 24 to 48 hours. At the end of 24 hours the remains were removed and food and water restored. When the exposed animals died or when they exhibited acute symptoms of infection they were autopsied and emulsions of spleen and liver were cultured on glucose cysteine blood agar. If *Br. tularensis* was not isolated on culture 0·2 ml. of the emulsions was inoculated into healthy deer mice in a further attempt to isolate the organism. In all cases definite identification of the isolated organism was made by specific slide agglutination tests.

Every rodent which ingested infected flesh contracted tularaemia. Those that did not, failed to contract the disease.

Of the 11 species of rodent tested, 7 readily consumed the infected flesh but 4 required 48 hours' starvation before they would partake of it.

Although the extent to which wild rodents supplement their natural diet with flesh has not yet been determined, these results indicate that carnivorism among desert rodents may occur and may be of importance not only in maintaining the disease in nature but also in the propagation of epizootics.

P. A. Clearkin

ŠEBEK, Z. Výsledky vyšetrování divoce žijících šelem na leptospirosy. **[Results of an Examination of Free Living Carnivora for Leptospirae]** *Českoslov. Epidemiol., Mikrobiol., Imunol.* Prague. 1958, v. 7, No. 5, 331–5.

The English summary appended to the paper is as follows:—

"97 free living carnivora (7 species) as well as 22 domestic cats were examined for leptospirosis. 50 p. c. of investigated animals reacted serologically positively. Positive reactions with L. gryppotyphosa were found: once in Felis domestica, further in foxes Vulpes vulpes, in Mustella erminea, Mustella nivalis, Putorius putorius, and once in Meles meles. With L. icterohaemorrhagiae, serum of 3 Vulpes vulpes, with L. bataviae, serum of a Mustella erminea, with L. australis A, serum of a Vulpes vulpes reacted positively. The most frequent were the reactions with L. grippotyphosa which 74 p. c. of all positive sera reacted with; with L. sejroe, 17 p. c. were positive, with L. icterohaemorrhagiae 5 p. c., with L. australis A 2 p. c., and with L. bataviae also 2 p. c. of the reactions. No direct proof of Leptospirae succeeded. The examined species of Carnivora evidently represent the so called potential reservoirs where Leptospirae are not preserved in the organism during long periods. The importance of free living Carnivora for the epizootic process of Leptospirae is evidently quite inferior."

ŠEBEK, Z. & VOSTA, J. Výsledky sérologického vyšetřování zajíců na leptospiry. **[The Results of a Serological Investigation of Hares for Leptospiroses]** *Českoslov. Epidemiol., Mikrobiol., Imunol.* Prague. 1958, v. 7, No. 5, 336–9. [12 refs.]

The English summary appended to the paper is as follows:—

"1365 hares were serologically examined for leptospirosis, the investigated materials coming from the regions of Jihlava and of Tábor. The examination was realized by the use of the agglutination-lysis reaction with 12 species of Leptospirae. In the region of Jihlava, there were 12.49 p. c. positive reactions; we could notice reactions with L. grippotyphosa (94.6 p. c. of all positive sera), with L. australis A (3.85 p. c.), and with L. mitis (1.54 p. c.). In the region of Tábor, 7.40 p. c. of the reactions were positive, all seras reacted with L. grippotyphosa only. The authors suppose that the hare is very presumably susceptible to leptospirosis."

MATUMOTO, M. *et al.* **Miyagawanella: Psittacosis-Lymphogranuloma Group of Viruses. 4. Serologically Diagnosed Human Cases of Psittacosis in Japan.** *Japanese J. Exper. Med.* 1958, Feb., v. 28, No. 1, 41–9. [11 refs.]

This paper describes what are thought to be the first reported human cases of psittacosis in Japan. The 8 cases occurred in the Tokyo and Kanagawa Prefectures during 1956 and 1957. All but one of the patients had intimate contact with birds. In 3 cases virus was isolated from the birds and in 2 others the birds had serological evidence of psittacosis infection. The diagnosis of psittacosis in the human cases was based on the clinical and serological (complement-fixation and haemagglutination-inhibition tests) findings; from none was the virus isolated. There were no fatal cases.

S. P. Bedson

STERN, L. **Rift Valley Fever in Rhodesia. Report of a Case in a Laboratory Worker.** *Central African J. of Med.* 1958, July, v. 4, No. 7, 281–3, 1 fig.

This is an epidemiological and clinical review of the disease with a report of one case. A laboratory technician became ill 4 days after handling infected mouse brains. There was biphasic fever. The first phase lasted 48 hours and was associated with severe headache, photophobia, pain behind the eyes, and epistaxis. There was also irritability, backache, nausea and occasional vomiting. This was followed by an afebrile intermission of 48 hours during which the patient felt better although listless. The second febrile phase lasted 24 hours with the same symptoms as before although they were less severe. No splenomegaly, lymphadenopathy or liver abnormality were detected. Recovery was complete. Rift valley fever virus was isolated from the patient's blood.

C. E. Gordon Smith

SHONE, D. K. **Rift Valley Fever in Southern Rhodesia.** *Central African J. of Med.* 1958, July, v. 4, No. 7, 284–6.

Rift Valley fever virus was isolated in suckling mice from the brain or liver or both of 9 aborted bovine foetuses. Brain is considered preferable to liver for this purpose as decomposition is less advanced than in the liver. There was no evidence of disease in the dams which aborted. Antibodies were found in cattle from a number of areas. 2 human cases are also reported: one in a laboratory worker [presumably the case reported in the same number of the journal by STERN (see above)] and another, confirmed by serology, in a veterinarian 4 days after he had done an autopsy on an infected sheep. *C. E. Gordon Smith*

Diseases due to Fungi

For papers on systematic mycology, see the section in Bacteriology, below. Papers on Blastomycosis (South American type), Coccidioidomycosis, Mycetoma and Rhinosporidiosis are abstracted in the TROPICAL DISEASES BULLETIN

PROC. ROY. SOC. MED. 1958, July, v. 51, No. 7, 491–502 (Sect. Pathology 19–30), 8 figs. [18 refs.] [**Discussion on Diseases due to Fungi** (RIDDELL, R. W., GOWING, N. F. C.; WINNER, H. I.; PARTRIDGE, Betty M.; CLAYTON, Yvonne M.)]

In a symposium on fungal diseases, R. W. Riddell, *The Role of Fungi as Human Pathogens* (pp. 491–3), reviewed some of the factors which may predispose to fungal infections of man and noted morphological adaptations to parasitic life of the fungi, host susceptibility and tissue reactions, the probable effect of products of fungal metabolism and the great variation in infectivity between the species.

N. F. C. Gowing, *Observations on a Case of Torulosis associated with Hodgkin's Disease* (pp. 494–6), gave the history and clinical findings of a case of Hodgkin's disease in which at necropsy the additional presence of cryptococcosis (torulosis) was revealed. The cryptococci were not distributed in the areas of Hodgkin's disease tissue and the pathological findings indicated that the cryptococcosis was a secondary infection.

H. I. Winner, *An Experimental Approach to the Study of Infections by Yeast-like Organisms* (pp. 496–9), stressed the necessity for greater knowledge of the experimental pathology of fungal infections before applying to them the immunity concepts of some bacterial and viral infections. He reviews his own studies on variation in pathogenicity between and within species of yeast-like fungi, and in particular those on *Candida albicans*.

In an examination of 5,500 patients Betty M. Partridge, *Multiple Fungous Infections of Skin* (pp. 499–500), isolated 2 dermatophytes from the same patient on 52 occasions and a dermatophyte together with another fungus in 27 others. In most of the patients with these double infections the clinical appearance was that of a *Trichophyton rubrum* infection and this fungus was isolated from over 80% of the cases.

In a study of the mycological flora of sputa Yvonne M. Clayton, *The Occurrence of Aspergillus fumigatus in Respiratory infections* (pp. 501–2), reiterated the value of using 2 temperatures for incubation of such cultures. As regards *Aspergillus fumigatus*, no figures were available concerning its connexion with asthma, or in the role of a transient resident in the bronchi, but in cases of the allergic type of aspergillosis of HINSON *et al.* (*Thorax*, 1952, v. 7, 317–333) it was always the associated fungus, and in cases of aspergillosis of the lung it was invariably the invader.

Jacqueline Walker

CHUCKERBUTTY, B. **Clinical Trial of a New Antimycotic Drug (Multifungin).** *Indian J. Dermat.* 1958, Apr., v. 3, No. 3, 118–19.

Fungus infections are so common in India that they should be considered in the differential diagnosis of practically any obscure skin condition.

The main species responsible for superficial fungus infections are *Trichophyton rubrum* (63%), *Epidermophyton floccosum* (33·23%), *T. gypseum* [*mentagrophytes*] (2·36%) and *T. violaceum* (1·41%). The incidence of *T. rubrum* is twice as high in India as in the United Kingdom (29%).

Many antimycotic drugs tend to irritate the skin and aggravation is caused if the resultant eczema is treated with further applications of the fungicide. 20 patients were treated with a commercial preparation known as Multifungin; this is a combination of 5-bromosalicyl-4-chloranilide with the antihistaminic

N-phenyl-N-benzyl-4-amino-1-methyl-piperidine (Soventol). The results are expressed in the following Table:

No. of Patients	Fungicidal Drugs	Duration of Treatment (Weeks)	Cured %	Improved %	No Improvement %
20	Multifungin Ointment – 12 cases Dusting Powder – 5 cases Solution – 3 cases	2	73·0	24·5	2·5
26	Whitfield's Ointment & Others	3	26·0	65·0	9·0

H. T. H. Wilson

VANBREUSEGHEM, R. **Tinea Capitis in the Belgian Congo and Ruanda Urundi.** *Trop. & Geograph. Med.* Amsterdam. 1958, June, v. 10, No. 2, 103–12, 5 figs. [10 refs.]

An investigation of the prevalence of tinea capitis among the tribes of the Belgian Congo and Ruanda-Urundi showed that in the densely populated towns of Léopoldville, Stanleyville and Bengamisa, the infection rate was 6·7%, 5·9% and 6·3%, respectively. In the Kasai region towns of Luluabourg and Luebo the rate was 40%, whereas in primitive populations such as Luisa and Opala it was less than 3%. In general, infections were fewer in the valleys than in the mountains. In Ruanda-Urundi at Usumbura the rate was 15%, but in the mountains it rose to 32·5%. The infections occurred largely among the indigenous Congolese; the white and Asian races were relatively free. Among adults, women alone were affected. The dermatophytes isolated were the same species as those in an earlier survey [VANBREUSEGHEM, this *Bulletin*, 1951, v. 26, 496].

Various hypotheses to explain the different rates of infection are discussed and in particular it is pointed out that the highest infection rate occurred in the Kasai region where protein deficiency is known to exist and the lowest rates were in the primitive populations where a protein diet is probably supplied by hunting, etc. To test this hypothesis 49 children with kwashiorkor were examined and 45 (92%) were found to have tinea capitis, although the clinical lesions were atypical. The additional influence of vitamin deficiency is not overlooked and other factors taken into consideration are a deficiency in non-saturated fatty acids on the scalp and damaged hair structures in children suffering from kwashiorkor. *Jacqueline Walker*

ZISKIND, J., PIZZOLATO, P. & BUFF, E. E. **Aspergillosis of the Brain. Report of a Case.** *Amer. J. Clin. Path.* 1958, June, v. 29, No. 6, 554–9, 7 figs.

A 35-year-old farmer injured his neck in a fall. 4 months afterwards a craniotomy in the region of the trigeminal nerve and adjacent brain revealed a chronic granulomatous mass containing fungal elements. 7 months later a granulomatous mass was excised from the right malar area and from this and a subsequent biopsy of the same region *Aspergillus oryzae* was isolated. At necropsy *A. oryzae* was also isolated from the brain tissues. Inoculation of rats and guineapigs with suspensions of the culture or of morbid material failed to produce lesions. *Jacqueline Walker*

WIJSMULLER, G. **Histoplasmin Sensitivity in some Villages in Netherlands New-Guinea.** *Trop. & Geograph. Med.* Amsterdam. 1958, June, v. 10, No. 2, 126–32, 1 fig.

"The total population of two villages in Netherlands New Guinea (795 persons) were tested for sensitivity to histoplasmin, two parts in 1,000 parts buffer solution, and to buffer solution only.

"The distribution of the reactions according to size suggests that reactions measuring 10 mm. and more may be interpreted as a positive histoplasmin test.

"The number of reactors in the two sexes (24·4 percent in males, 14·4 percent in females) showed a striking difference. An explanation is suggested."

WILCOX, K. R., Jr., WAISBREN, B. A. & MARTIN, J. **The Walworth, Wisconsin, Epidemic of Histoplasmosis.** *Ann. Intern. Med.* 1958, Aug., v. 49, No. 2, 388–418, 9 figs. [32 refs.]

An outbreak of 19 cases of histoplasmosis [of which the clinical, X-ray and laboratory findings are given] occurred during the digging of the foundations for a house on a previously unused plot in a residential area with a population of 1,200 in southwestern Wisconsin. Soil samples from the plot yielded *Histoplasma capsulatum* on 4 occasions and the fungus was also isolated from 2 of the patients.

The date and extent of exposure were determined in each case. Incubation periods were unrelated to age, amount of exposure or subsequent severity of the disease, but a direct relationship was established between extent of exposure and severity of illness.

A histoplasmin skin test survey of residents in the area showed that in the immediate vicinity of the affected plot the positive reactor rate was 40·5% and the rate decreased with distance from it.

Jacqueline Walker

VAN DIJK, E. & DER KINDEREN, P. J. Sporotrichose. **[Sporotrichosis]** *Nederl. Tijdschr. v. Geneesk.* 1958, Oct. 4, v. 102, No. 40, 1959–65, 4 figs. [31 refs.]

The English summary appended to the paper is as follows:—

"A description is given of a case of the multiple ulcerative subcutaneous type of sporotrichosis in a patient also suffering from sarcoidosis. The mycotic infection had been contracted in South Africa, possibly by contact with straw. Sodium iodide by mouth, 3 g daily, resulted in complete healing in just over 5 weeks; the treatment was then continued for another 3 months.

"The literature on the subject is reviewed."

Heart Disease

KENNEDY, A. C. **Observations on the Incidence of Coronary Heart Disease in a Rural Area in South-West Scotland.** *Scottish Med. J.* Glasgow. 1957, Nov., v. 2, No. 11, 420–24, 1 fig.

In this study the incidence of coronary heart disease in a largely rural area of south-west Scotland has been estimated on the basis of the records of the medical unit of the main hospital serving the area. Coronary heart disease proved to be the commonest reason for admission. Males were more frequently admitted than females in all age-groups, particularly in the age-group 40–49 where there were nearly 10 times as many male admissions. The case fatality rate in the first week was, at about 30%, much the same in the two sexes. Although most of the male patients were agricultural workers, the admission rate among them was apparently no less than for others in the working population. This suggestion that agricultural workers do not have a particularly low incidence of coronary heart disease is contrary to other evidence and it stimulated the field study described in the following paper [see below].

D. D. Reid

KENNEDY, A. C. & COWAN, Betty. **Further Observations on the Incidence of Coronary Heart Disease in a Rural Area in South-West Scotland.** *Scottish Med. J.* Glasgow. 1958, July, v. 3, No. 7, 283–7. [13 refs.]

As part of a wider epidemiological investigation the authors examined a randomly selected sample of males between the ages of 55 and 64 years living in a rural area in south-west Scotland. Clinical histories of symptoms suggestive of coronary disease, and electrocardiographic readings, were taken. Chest radiographs and serum cholesterol samples were also obtained.

Of the 98 men seen, 51 were employed on heavy physical work. The prevalence rate of coronary disease, as defined in this paper, among these men (23·5%) was the same as the rate for others in jobs requiring much less physical effort. Other observations on smoking, blood pressure and family history showed no substantial differences between those with coronary disease and the remainder, although the coronary subjects were significantly heavier. The unexpectedly high rate of coronary disease among the most actively employed is discussed and the need for further field study is stressed.

D. D. Reid

Cancer

SARMA, S. N. **A Study into the Incidence and Etiology of Cancer of the Larynx and Adjacent Parts in Assam.** *Indian J. Med. Res.* 1958, May, v. 46, No. 3, 525–33. [13 refs.]

A previous study has shown that of 351 patients diagnosed as having cancer at the Assam Medical College Hospital in a 3-year period, the larynx was the primary site in 186. In a further group of 322 cancer patients the primary site was in the upper alimentary tract (including larynx) in 238 and in the larynx in 108. The proportions of laryngeal cancers (almost wholly extrinsic) is, in both these series, very much higher than has been reported for other parts of the world.

A study of the national origin of the patients showed that the proportion was somewhat higher among those of Assamese origin, though it was also high among the non-Assamese. Betel-chewing was also commoner among the Assamese than among the non-Assamese (among non-cancer patients the proportions addicted were 82·4% and 71·9%). Among patients with cancer of the upper alimentary tract the proportions were even higher (Assamese patients 98·4%, non-Assamese 90·4%). The type of nut chewed—Tamol—is characteristic of Assam. It is a raw nut, which is not dried, and it produces an irritant juice which is swallowed and readily induces toxic effects. Tamol is used more commonly among addicted patients with upper alimentary cancer than among patients without cancer. It is concluded that there is a close correlation between the incidence of laryngeal cancer and of the chewing of Tamol.

[The interpretation of these potentially valuable data would be helped if they were given separately for men and for women.] *Richard Doll*

HAMMOND, E. C. **Lung Cancer Death Rates in England and Wales compared with those in the U.S.A.** *Brit. Med. J.* 1958, Sept. 13, 649–54, 3 figs. [16 refs.]

Standardized death rates for lung cancer are substantially higher in England and Wales than in the U.S.A. (in 1955 the rates for men were 69·3 and 33·0 per 100,000 and for women they were 10·6 and 6·7 per 100,000). In both countries the rates for men have increased over the past 25 years and the relative difference has remained about equal; the rates for women have increased less but the difference has become more pronounced since 1948.

Several factors related to cigarette smoking might contribute to the difference. Although the average number of cigarettes per person is now higher in the U.S.A. than in Britain (3,195 against 2,509 annually) it was higher in Britain in 1935 (1,410 against 1,589). There may be a greater proportion of long-term cigarette smokers in Britain, but over half the U.S. males aged 50 to 69 years who are currently smoking cigarettes started before they were 25 years old. Data for the proportion of cigarette smokers who inhale suggest that there is little difference in this characteristic (84% among male smokers in Britain against 82% in the U.S.A.). It has been suggested that American smokers discard more of their cigarettes than do British smokers. Measurements on butt lengths have been made on 4,283 butts collected from homes, offices, restaurants, sidewalks, stations and parks in several U.S. towns. The average butt length was 30·9 mm. and only 8·2% of filter-tipped butts and 9·4% of butts without filter tips were less than 20 mm. It is estimated that about 38% of each filter-tipped cigarette and 41% of each non-filter cigarette are discarded. In the Netherlands the average butt length is, according to KORTEWEG, 19·7 mm. A similar short length in Britain might well account for the difference in the reported death rates.

Other factors which may be considered are industrial risks and general atmospheric pollution. Calculations based on the death rates for non-smokers in urban and rural areas suggest that the specific urban factor (independent of cigarettes) may be about five times greater in Liverpool than in large American towns. The Liverpool data are unlikely to be typical of Britain, but, if they were, differences in pollution might account for about half the difference among middle-aged men. Bronchitis is commoner in Britain and may be another factor. Finally, some of the discrepancy may be due to differences in diagnostic habits.

Richard Doll

DENOIX, P. F., SCHWARTZ, D. & ANGUERA, G. L'enquête française sur l'étiologie du cancer broncho-pulmonaire. Analyse détaillée. **[The French Study of the Aetiology of Broncho-Pulmonary Cancer. Detailed analysis]** Reprinted from *Bull. du Cancer.* 1958, v. 45, No. 1, 1–37. [14 refs.]

As described in previous papers [this *Bulletin*, 1958, v. 33, 348] the authors have carried out a retrospective enquiry by collecting information from a large number of male patients, mainly in Paris hospitals. For each patient with cancer of the lung (602 cases) 2 matched controls were taken of similar age, in the same group of hospitals and interrogated at the same time by the same investigator; 1 was a patient with any disease except cancer, while the other had suffered an accident, in transport or at work. The enquiry also included a group of patients with cancers of the upper respiratory and digestive tract and a group with any other form of cancer. In this present report the various groups are utilized thus: (1) the two control groups are compared one with the other; (2) if there is a significant difference an explanation is sought; if there is no significant difference the two groups are combined and compared with the cancer of the lung group; (3) if any difference is here revealed the controls and the cancer of the lung group are separately compared with the combined group of all other cancers.

The enquiry covered as many as 160 items of information concerned, broadly, with the patient's place of birth, place of work, occupation and occupational exposures to known carcinogenic agents, civil state, family history, personal history and dietary habits. An exhaustive and critical statistical analysis leads to the conclusion that the cancer of the lung cases differed from the other groups in 11 characteristics. By far the most decisive of these features was the smoking of cigarettes. None of the others approached it in significance and it operated at each level of the other 10 criteria. In short it appears that the cancer of the lung patients had smoked more heavily than the controls "all other things being equal" (*i.e.* within the 160 examined), a result which clearly supports a direct cause-and-effect relationship. Of the remaining 10 characters, 6 could be provisionally dismissed as concerning very few of the patients or as being correlated with smoking (*e.g.* the drinking of aperitifs). The 4 that appeared to have some independent importance were (1) a history of chronic bronchitis, (2) poor dental condition, (3) the consumption of coffee, and (4) gassing in the war. Chronic bronchitis and the loss of teeth appear to play a part mainly, or perhaps only, when the subject is a relatively heavy smoker. On the other hand gassing appears to play a part independent of smoking and may explain a significant proportion of the cancer of the lung that occurs in non-smokers. The drinking of coffee would seem to operate independently of smoking and also to have an association with cancer of the oesophagus. No explanation is presented. None of these 4 characteristics compares at all in importance with cigarette smoking. Whereas they may increase the risk about 2-fold, smoking increases it 10-fold and heavy smoking 30-fold.

A. Bradford Hill

STRÄULI, P. Der Lungenkrebs der Frau. **[Cancer of the Lung in Women]** *Schweiz. med. Woch.* 1958, Sept. 13, v. 88, No. 37, 897–900, 6 figs.

The English summary appended to the paper is as follows:—

"Among the necropsies performed at the Department of Pathology of Zurich University, cancer of the lung accounted for 4% of all cases in the middle of this century, as opposed to 0.5% at its beginning. In the period 1901–1956 1218 cases of lung cancer were observed, 1064 in men and 154 in women. Whereas in males an impressive progression of lung cancer autopsies is evident over the last 30 years, an increase in females is recognizable only in the last 10 years. By means of the observed differences in histological and age distribution the possible causative factors in the preponderance of male cases are discussed. Whether the shifting organ distribution in cancer plays a role in sex distribution of lung cancer is uncertain; an analysis of all cancer necropsies of the Department of Pathology, which has been initiated, will eventually permit an answer to be given. In any case an environmental influence with delayed exposition of the females seems to be a far more important etiologic factor. To elucidate this mechanism prospective inquiries are much more suitable than retrospective ones; to be complete they should comprehend several cohorts of both sexes and begin at puberty."

DANETSKAYA, O. L. [**The Use of Ultra Sound and High Frequency Currents for Decancerization of the Slate Chamber Tar**] *Gigiena i Sanitariya.* Moscow. 1958, v. 23, No. 9, 29–35, 6 figs. [In Russian.]

The English summary appended to the paper is as follows:—

"The aim of this investigation is the prophylaxis of cancer which can be produced by the high temperature slate products both among labourers and population. Cancer tumours developed at much earlier periods when untreated slate chamber tar had been applied on the skin of white mice. The maximum of cancer tumours developed at much later periods after the application of slate chamber tar subjected to various methods of treatment. The most marked reduction in cancerogenic activity of chamber tar was observed after radiation with the ultra short waves (by 95%); after the action with ultra sound waves (fluctuation frequency 600.000 herz/sec) it was reduced by 73%. Both of these methods might be used in the gas-slate plants."

See also p. 64, GORTALUM & DIKUN, **Determination of 3,4-Benzopyrene Content in certain Schistose Products and in the Effluents of Schistose Chemical Plants.**

Occupational Hygiene

In this section the abstracts are arranged as far as possible in the following order: General; Mining and Dust Diseases; Poisoning due to Metals, Solvents and Other Substances; Skin and Other Affections; Radio-Active Substances; Other Conditions; Occupational Psychology

MINISTRY OF PENSIONS AND NATIONAL INSURANCE. **Notes on the Diagnosis of Occupational Diseases prescribed under the National Insurance (Industrial Injuries) Act, 1946.** pp. iv + 52. 2nd Edition. 1958. London: H.M. Stationery Office. [3s.]

Under the National Insurance (Industrial Injuries) Act, 1946, benefit is available for industrial injuries and for certain prescribed occupational diseases.

This booklet provides notes on these clinical conditions (there are about 40 of them) varying from about 100 words on heat cataract, beat knee, beat elbow, and poisoning by African boxwood, to about 1000 words on poisoning from lead, arsenic, derivates of benzene, beryllium, and nitrous fumes. There is a section of 5 pages, in addition, on pneumoconiosis and a very brief note on byssinosis.

The notes are prepared for the guidance of doctors asked to examine and report on persons claiming benefit under the Act. They are diagnostic notes in the main, but in so far that they are very brief, the occupational conditions associated with these syndromes are only mentioned in the most general terms.

No guidance is given as to how to assess the degree of exposure on the job. In fact nowhere in the booklet is it ever suggested that diagnosis in doubtful cases requires a careful investigation of the work place.

As it stands the booklet is useful as a collection of potted notes on industrial toxicology. But if, as the foreword suggests, there is a desire to stimulate a wider interest in the whole field of occupational medicine, then a section to encourage a doctor to visit the factory and see the job for himself should be added. It should tell him briefly how to use his eyes and ears and how to seek help from the "backroom boys". This is basic information for accurate assessment of doubtful claims and, of course, for preventing further claims.

T. O. Garland

HENDERSON, W. K., WALKER, D. E. & WILSON, J. F. **An Enquiry into Long Term Incapacity for Work.** *Health Bull.* (Issued by the Chief M.O., Dept. of Health, Scotland.) 1958, Oct., v. 16, No. 4, 68–74.

In a series of reports published in the 1930's the Department of Health for Scotland drew attention to the fact that long-term incapacity continuing throughout the year accounted for more than one-third of the time lost through sickness among the insured population. Figures for 1954 showed that the proportion of total sickness through this long-term incapacity was still very high. A study was initiated by the Department in 1937 with the cooperation of the medical profession and of Approved Societies with the purpose of considering whether this long-term incapacity could be reduced. This enquiry showed that lack of diagnostic, specialist and hospital services was not a factor of cardinal importance in prolonging incapacity for work. The study described in this paper was directed to "an analysis of the medical and social background to prolonged sickness absence, in an effort to ascertain the factors involved and, if possible, how far they are preventable." The study was carried out in the Burgh of Rutherglen with the aid of the medical officer of health, family doctors, local officers of the Ministry of Pensions and National Insurance and of social workers. It was decided to review patients who had been certified as unfit for work for at least 3 months. Between September 1956 and the end of February 1957 a total of 284 patients—138 males and

146 females—were examined medically and their social circumstances investigated. The results of the study are described with 2 tables of data and discussed.

Among the results of the study are: (1) the main causes of incapacity, which accounted for 70% of the total, were mental illness (19·5%), non-tuberculous respiratory disease (13·7%), orthopaedic conditions (11·4%), pulmonary tuberculosis (6·6%), heart disease (7·8%) and pregnancy (5·8%), (2) of the males 32% were under 45 years old and 70% of the females were under this age, (3) 24% of the males and 26% of the females were considered to be fit to return to their normal occupation, (4) lack of medical facilities was not a factor of importance in prolonging the duration of incapacity and (5) social factors were considered to be of great importance in producing or aggravating illness—approximately 50% of the patients had housing problems, 54% had financial difficulties and 32% had problems relating to their working conditions.

M. E. Delafield

SILLERY, R. J. **Decompression Sickness. A Review of the Literature and Previously Unreported Histologic Observations.** *Arch. Pathology.* 1958, Sept., v. 66, No. 3, 241–6, 4 figs. [11 refs.]

A case is reported of a 35-year-old man who, after working in a caisson for 6 hours (2 or 3 hours beyond the usual spell) and being decompressed in the medical air lock, experienced generalized pain and vertigo before he reached home. He was recompressed and decompressed over 1½ hours without his distress being alleviated. He was then sent to hospital where he arrived in coma and died within 10 minutes. Other men who had worked with him experienced no symptoms.

At post-mortem 7 hours later (the body had been placed in a refrigerator after death) most of the blood vessels contained minute air bubbles and there were crepitations over the chest and abdomen.

The pericardium was filled with water and when the cardiac chambers were incised large bubbles escaped from the right atrium and the inferior vena cava.

Histological observations are very interesting and excellently illustrated in 4 figures, 2 sections of liver, 1 of pancreas and 1 of pulmonary vein, showing gas bubbles in the blood. Large amounts of fat were demonstrated in the liver and pancreas and bubbles of gas were present within the lipoid masses.

The author states that the bubbles of gas in the vessels were of air but is doubtful as to the composition of the gas in the lipoid of liver and pancreas. He quotes BERT (*La Pression barométrique,* 1878. Paris: G. Masson) who suggested that the gas within fat invoked in decompression sickness was chiefly nitrogen with some CO_2 present and only a trace of O_2.

T. O. Garland

ORDMAN, D. **Cereal Grain Dusts as a Cause of Respiratory Allergy in South Africa.** *South African Med. J.* 1958, Aug. 2, v. 32, No. 31, 784–8. [21 refs.]

This paper gives a detailed description of some investigations of " sensitivity to the inhalation of cereal dusts in South Africa " manifested as vasomotor rhinitis and bronchial asthma, and also " emphasizes the value of desensitization by the use of specific extracts ". The subject is introduced by references to the relevant literature and a short account of the localities in South Africa where the foodstuff cereals are grown. The chief of these cereals are maize, wheat, kaffir-corn, oats, rye, barley and rice. Tables and description set out the frequency of clinical sensitivity to 1 or more of these cereals, the number of clinically sensitive patients in whom the sensitivity was confirmed by skin tests, the occupational distribution of a group of 76 cereal-sensitive patients and particulars of 18 patients who were given desensitization treatment by intracutaneous injection of specific cereal extracts.

In 128 patients clinically sensitive to 1 or more cereals it was found that 71·9% were sensitive to maize, 39·1% to wheat, 22·7% to kaffir-corn, 14·8% to oats, 7·0% to rye and 3·9% to rice. Cereal-dust sensitivity occurred mainly in persons who handled the grain but was also found in housewives and others who only occasionally had contact with grain dust.

M. E. Delafield

HOUBERECHTS, A. L'activité de l'Institut d'Hygiène des Mines au cours de l'année 1957. **[The Work of the Institut d'Hygiène des Mines during 1957]** Reprinted from *Ann. Mines Belgiques.* 1958, No. 5, 36 pp., 19 figs. [42 refs.]

This annual report follows a now well-established presentation. Where studies, reported in previous years, have since been completed and the results published, precise reference is given to authors and journals. The chief current researches by the staff of the Institute are summarized. The report is in two section, (I) the work of the medical division, and (II) the work of the technical division. Pneumoconiosis was the chief subject of study by both groups during 1957.

A radiological enquiry was made into the comparative value of large films (35 × 35 cm.) and small films (10 × 12 cm. and 7 × 7 cm.) in the diagnosis of early pneumoconiosis of coalminers. The scheme of enquiry and analysis followed the fashionable system of multiple reading of films by a number of observers, separately and in groups. The analysis confirmed the existence of inter- and intra-observer error. The large film proved more reliable and the investigators state that its value is enhanced if the reading of films is controlled by use of standard films.

Massive shadows were investigated by tomography. The conclusion is that it is always difficult to differentiate between infective and non-infective pneumoconiosis.

Several studies of pulmonary function were made by using open and closed circuit methods, including the *métabographe* of Fleisch [workers in this special field of study should study the original; a detailed description and diagram of the Fleisch apparatus are given].

Studies by the technical division included a comparison of the PRU hand pump and the thermal precipitator in the investigation of dust conditions underground; a system of water infusion of coal seams;

and study of temperature conditions and their effects on workmen in the pit bottom. *A. Meiklejohn*

OOSTHUIZEN, S. F. **Certain Differences in the Radiological Appearance between the Lung Fields of the African and the European. A Preliminary Report.** *Med. Proc.* Johannesburg. 1958, Sept. 20, v. 4, No. 19, 635–43, 7 figs.

After careful study of more than 1,000 X-ray films taken over a period of 5 years, professor Oosthuizen at the University of Pretoria, South Africa, concluded that the normal radiographic appearances of the lungs in Africans differed from those in Europeans. This is important in relation to the diagnosis of first stage pneumoconiosis among miners and African labourers for the purposes of workmen's compensation.

The author accepts that there is no difference in the histological structure of the lungs of the two racial groups. He believes that the basic difference between the configuration of the thorax of the European and the African is probably anthropological, and the resulting differences in the appearances of the heart and lung fields are probably due to mechanical causes.

This is a preliminary report and it is recommended that the entire matter should be further explored.

[It is of supreme importance that any follow-up study of this matter should not be hastily arranged but designed by an expert scientific panel to ensure that no material observations are omitted. A comparable study carried out simultaneously in Northern Rhodesia would enhance the project.] *A. Meiklejohn*

VIGLIANI, G. A. Prospetto della attività schermografica degli autocarri radiologici dell'E.N.P.I. nell'anno 1955. [**Mass Miniature Film Survey made by the National Accident Prevention Bureau in Dusty Trades during 1955**] *Rass. Med. Indust.* Turin. 1958, May–June, v. 27, No. 3, 197–217. [13 refs.] English summary.

This posthumous report deals with the findings of the 3 mobile mass radiography units with headquarters at Milan which work under the aegis of the ENPI (National Accident Prevention Bureau) which has certain statutory powers in Italy. The report is so concise and so full of facts that it is difficult to abridge further and certainly deserves to be read in full.

Of the 3 units, one uses 70 × 70 mm., and the others 80 × 80 mm. films. Under the regulations workers in certain sections of industries with a risk of silicosis must have an annual X-ray examination of the chest, and in 1955, 86,074 persons from 1,982 factories were examined for silicosis, and 1,930 from 30 factories for asbestosis. Out of 88,000 films 10,734 showed reticulation and 1,328 (1·5%) silicosis or asbestosis. 1,017 of these films showed nodular, 60 confluent or massive silicosis, and 18 silicotuberculosis. In addition 490 were classified as tuberculosis possibly active, and 63 as probably active. Compared with 1954 the figures showed little change.

The findings are set out in 39 tables, by administrative regions and industries. The highest incidence rate of silicosis was found in Piedmont, followed by Lombardy, Tuscany, Liguria and Sardinia [see abstracter's note below]. The extractive and ceramic industries had the highest incidence while asbestos was also very important, as in 1,561 workers 244 (15%) cases of asbestosis were found, 46 being moderate or advanced. No case was found in which there was any suggestion of an association between asbestosis and lung cancer.

An interesting comparison with the above figures is given in the figures for persons in non-dusty industries. Here 17,598 persons were examined by X-ray; silicosis was virtually nil and the percentage of those with tuberculosis was the same as for the dusty industries, which suggests that such industries have little if any influence on the development of the disease. In addition, in 20 schools 3,981 pupils were examined by X-ray.

As an example of high incidence the figures for a quartzite quarry are quoted where out of 152 workers there were 28 cases of reticulation and 17 of nodular silicosis; in 425 workers making porcelain insulators in the ceramic industry, 25·4% showed reticulation and 4·5% definite silicosis, while the tuberculosis incidence was also very high (1·9%). In Sardinia, out of 5,359 tunnellers, miners and quarrymen, 18·4% showed reticulation and 2·4% silicosis.

[According to table 16 Sardinia, and not Piedmont, had the highest silicosis rate, with Tuscany next. There was also a high silicosis rate among steel foundry workers but not among those working with pig- or cast-iron.] *W. K. Dunscombe*

FARAONE, G. & MAJORI, L. Determinazioni conimetriche e granulometriche nelle varie fasi lavorative della industria della pomice in Canneto-Lipari (Messina). [**Konimetric and Granulometric Estimations in the Various Phases of Work in the Pumice Industry of Canneto-Lipari (Messina).**] *Acta Med. Legalis et Socialis.* Liège. 1958, Jan.–Apr., v. 11, No. 1, 83–94. [Numerous refs.] French summary.

This is an elaboration of work already carried out on the silicosis risk to pumice workers in the Lipari Islands [see VENDRAMINI and FARAONE, this *Bulletin*, 1958, v. 33, 762]. By means of a thermal precipitator, konimetric and granulometric estimations were carried out at all stages of the work, from the cutting out of the block of pumice to the final packaging of the dried completed product. There is a full description of the various procedures and a very disturbing account of the clouds of dust which envelop the people working in the sieving, bolting, and artificial drying processes.

The dust concentrations gradually increase, each process being more dusty than the preceding one, and at the same time the proportion of particles less than 5μ also increase so that they form more than 90% of the dust in the more dusty sections. The silicosis risk is therefore very great, especially as the total silica content of Lipari pumice is about 72%, with free silica between 1·2 and 5%. The "impalpable" pumice powder, which is the most costly, is also the most dangerous. *W. K. Dunscombe*

Münz, J. Krankheit der Glasschleifer. **[Occupational Illness in Glass Grinders]** *Ztschr. f.d.g. Hyg. u. ihre Grenzgebiete.* Berlin. 1958, Jan.–Feb.–Mar.–Apr., v. 4, Nos. 1/2, 67–75, 5 figs.

In this paper the author gives an account of the manufacture of glass and a technical description in some detail of the various processes in which different glass workers are engaged. The risks of exposure to dusts in these processes are considered. An account is given of 2 glass factories, the nature of the work carried out in them, special risks to which workers had been exposed and the improvements that have been introduced to lessen the risks. Some particulars are given of the results of examinations to enumerate the dust particles in different parts of the factory. The results of X-ray examination of 6,950 workers in glass are analysed in a table. Among these there were 468 with healed tuberculosis, 743 with tuberculosis which was not entirely healed, 27 with tuberculosis and silicosis and 26 with silicosis. Some X-ray photographs of particular cases are given.

In the conclusion it is stated that although silicosis may occur in workers in many of the processes in which they work it was only established with certainty in the group of the glass grinders. Silicosis was found in 0·76% of all the workers who were examined but in 2·5% of workers exposed to particular risks from dust and in 5·2% of workers who had been actively at work for more than 25 years. *M. E. Delafield*

Furuya, Y. **Tissue Reactions Produced by Aluminium Dust and the Effect of Aluminium on the Development of Silicosis.** *Bull. Inst. Pub. Health.* Tokyo. 1958, Mar., v. 7, No. 1, 19–28, 17 figs. [19 refs.]

The author, working in the department of Industrial Hygiene, the Institute of Public Health, Tokyo, investigated the histological changes induced by the intraperitoneal and intratracheal injection of aluminium powders in rats. The particle size of the powders varied: in the coarsest sample the mean particle size was 1·42 microns. 1 of the test samples was Al-MC—the metallic aluminium powder prepared at the McIntyre Research Foundation. In each experiment 5 male rats and 4 different samples of aluminium powder were used. 1 cc. of vehicle containing 100 mgm. of dust was injected peritoneally and 1 cc. containing 50 mgm. intratracheally. The animals were killed 7 months after injection and the lung tissue, peribronchial lymph nodes and peritoneal nodules produced by the dust were examined histologically. It was proved that aluminium dust produced considerable fibrosis in the peritoneum, moderate fibrosis in the lung, and very little or no fibrosis in the lymph nodes [this last finding is important in relation to the experiments below].

Chemical tests showed that these aluminium powders inhibited the solution of quartz [see next abstract]. The same powders were then used to assess their effect on the development of silicosis. A group of rats were injected intratracheally with a mixture of quartz and aluminium; a control group received quartz only. The animals were killed at intervals of 2, 3, 4 and 9 months. The hilum nodes were examined histologically. Finely powdered aluminium dust prevented the onset of experimental silicosis in the lymph nodes but coarse dust did not. The author concludes that aluminium dust must be very fine to prevent silicosis and in his experiments Al-MC was the most effective sample. *A. Meiklejohn*

Furuya, Y. **Tissue Reaction by Amorphous Fine Silica and Quartz with Different Sizes.** *Bull. Inst. Pub. Health.* Tokyo. 1958, Mar., v. 7, No. 1, 29–36, 16 figs. [11 refs.]

Fine amorphous silica powder, 50% of the particles under 0·5μ, and quartz powder with sizes of 1·5μ, 3·4μ and 4·5μ, were administered intravenously to rabbits to measure the fibrogenicity of these agents. The dosage was based on body weight of the animals and the total amount administered to each at weekly intervals for 10 weeks was between 500 and 700 mgm. The animals were killed on the 500th and 533rd days after the first injection. Tissue from the liver, spleen and lungs was examined histologically. It was shown that fine amorphous silica did not produce any pathological change except for a feeble giant cell formation, and the fibrogenic potency of quartz in the liver increased markedly with the particle size increment from 1·5 to 4·5μ. During the period of the experiment (500 to 533 days), specific silicotic fibrosis was not induced by these quartz particles, either in the lungs or spleen, but non-specific pathological changes developed and advanced with increase in particle size. *A. Meiklejohn*

Schlipköter, H. W. & Dolgner, R. Tierexperimente zur Frage der Antikörperbildung nach Quarz-Injektion. (Ein Beitrag zur Ätiologie der Silikose.) **[Alleged Formation of Antibodies after the Injection of Quartz into Animals. (A Contribution to the Aetiology of Silicosis)]** *Ztschr. f. Hyg. u. Infektionskr.* 1958, v. 145, No. 1, 92–102, 2 figs.

It has been claimed that immunization with hyaline homogenates from silicotic nodules produces antibodies capable of reacting with protein present in the polysaccharide-lipoid matrix in which fibres of silicosis are embedded. Immunization with suspensions of quartz and other dusts, the particles of which had been coated with protein, has been supposed to result in an agglutination reaction to the same dust when it was injected later, thus illustrating its action as an antigen and the presence in the blood of antibodies. It was assumed that the act of adsorption on the surface of the dust particles caused a structural change in the protein empowering it to act as an antigen.

Repetition of the latter experiments, described in this paper, failed to confirm the antigenic properties and it is concluded that the agglutination reactions observed by the earlier workers were due to the presence of bacteria in the dust. *C. N. Davies*

REJSEK, K. Exploration des fonctions pulmonaires chez les silicotiques. **[Investigation of Pulmonary Function in Silicosis]** *Acta Med. Legalis et Socialis.* Liège. 1958, Jan.–Apr., v. 11, No. 1, 15–23, 8 figs. [10 refs.]

In Czechoslovakia the award of compensation for silicosis is dependent on impairment of pulmonary capacity. Accordingly experts have sought to discover the best means of measuring this loss of pulmonary function. The author studied the various tests and apparatus normally used in the measurement of pulmonary ventilation. He concludes that the assessment of the degree of incapacity of a workman suffering from silicosis must include laboratory measurements of pulmonary function. *A. Meiklejohn*

GAFFURI, E. & BERRA, A. Valori normali di capacità vitale e volume espiratorio massimo per secondo. **[Normal Vital Capacity Values and Maximum Expiratory Volume per Second]** *Med. d. Lavoro.* 1958, Aug.–Sept., v. 49, Nos. 8/9, 504–12, 2 figs. [13 refs.]

The English summary appended to the paper is as follows:—

"Vital capacity and maximum expiratory volume per second values, obtained from 104 healthy male subjects 16 to 64 year old, were studied statistically. A nomogramme was worked out for calculating the theoretical normal values of such spirometric data according to age and stature. A comparison is made between the various equations proposed and those most recommendable for calculating the same normal theoretical values are indicated."

SARTORELLI, E., GRIECO, A., SCOTTI, P. & TOMASINI, M. Valutazione dell'elasticità polmonare nei normali e nei silicotici mediante la determinazione della curva delle pressioni di rilassamento. **[Lung Elasticity Evaluation in Normal and Silicotic Subjects by determining the Relaxation Pressure Curve]** *Med. d. Lavoro.* 1958, Aug.–Sept., v. 49, Nos. 8/9, 513–21, 5 figs.

The English summary appended to the paper is as follows:—

"Lung elasticity was studied in normal and silicotic patients by determining the curve of relaxation pressures of chest and lungs according to Rahn & coll.: this curve makes it possible to calculate the relaxation volume on breathing and the elastic work on breathing. The following subjects were studied: 23 normal males (average age: 44.6 years) and 41 silicotic males, 21 of which had reticular-micronodular silicosis (average age: 48.7 years) 7 had nodular disseminated silicosis (average age 50.3 years) and 13 had confluent nodular or massive silicosis (average age 53.2 years). In the normal subjects group and in the three groups of silicotic patients the average value of relaxation volume was found to be, respectively: 40.3%; 47.5%; 47.6% and 52.2% of the vital capacity (the difference between the average normal value and the values of all three silicotic groups is statistically significant). The average value of expiratory maximum pressure was found to be, respectively: 22.3 mm Hg; 14.5 mm Hg; 10.7 mm Hg and 7.4 mm Hg (differences between the values of all groups are statistically significant).

"The average value of elastic work on breathing corresponding to a ventilatory volume of 500 ml was found to be respectively: 981 g. cm; 873 g. cm; 758 g. cm and 587 g. cm (the differences are statistically significant only for average normal value and massive silicotics group, and for reticular silicosis group and massive silicotics group). These findings show that in all the forms of silicosis there is a decrease of pulmonary elasticity, to be connected with the fibrosis and the associated emphysema."

SARTORELLI, E. & GRIECO, A. Spazio morto respiratorio e ventilazione alveolare nei soggetti normali. **[Respiratory Dead Space and Alveolar Ventilation in Normal Subjects]** *Med. d. Lavoro.* 1958, Aug.–Sept., v. 49, Nos. 8/9, 522–9, 3 figs. [Numerous refs.]

The English summary appended to the paper is as follows:—

"A method for measuring dead respiratory space (D.S.) has been set up: maximal alveolar CO_2 concentrations are obtained from the expiratory CO_2 curve registered by the URAS-M infrared gas analyser. Alveolar ventilation values are obtained by substracting D.S. values from pulmonary ventilation values. This method was used for calculating D.S. values and $\frac{\text{alveolar ventilation} \times 100}{\text{pulmonary ventilation}}$ ratio (index of ventilatory efficiency), in two groups of normal male subjects. The following results were obtained. The first group of 14 normal subjects (average age: 28.4 years) had an average D.S. value of 148 ± 23 ml. The second group of 11 normal subjects (average age: 49.7 years) had an average D.S. value of 152 ± 24 ml. The difference between the two average values is not statistically significant.

"The average values of the $\frac{\text{alveolar ventilation} \times 100}{\text{pulmonary ventilation}}$ ratio, obtained in the two groups of normal subjects (young and adult), are respectively 73.3 ± 4.5 and 70.4 ± 3.1."

CURTIS, J. K., BAUER, Helene, LOOMANS, Sallie & RASMUSSEN, H. K. **Pulmonary Diffusion Capacity Studies. I. A Simplified Technique of Carbon Monoxide Breathholding.** *Amer. J. Med. Sci.* 1958, July, v. 236, No. 1, 53–6, 1 fig. [16 refs.] **2. Clinical Results using a Modified Carbon Monoxide Breathholding Technique.** *Ibid.*, 57–64, 3 figs. [17 refs.]

(i) In the first of these valuable papers a modification is reported of the single-breath method for lung diffusing capacity which leads to an estimate of D_{co} at high alveolar O_2 tension (300 mm. Hg).

Ordinarily in this method helium is inhaled with CO and provides, by the fall in its concentration, a measure of the dilution, as compared with absorption of the CO. Here the N_2 of air (about 79%), to which 0·4%

CO was added, is used instead of He. This mixture is inhaled at the end of the open-circuit nitrogen-wash-out method for determining residual volume, when the lungs are virtually free from nitrogen after breathing pure O_2 for 7 minutes.

When D_{CO} obtained in this way is compared with that at normal alveolar tensions (100 mm. Hg) with the He method, the relative contributions can be assessed of true alveolar-capillary membrane and blood components of diffusion.

The disadvantage of the method is that nitrogen meters are expensive and the alternative gas analysis methods (*e.g.* Scholander) are time-consuming.

(ii) This paper reports mean values for many lung function tests in 101 persons classified as follows: 1. normal or minimal tuberculosis (14); 2. moderately advanced tuberculosis (9); 3. far advanced tuberculosis (34); 4. emphysema (21); 5. farmer's lung (9); 6. silicosis (4); 7. sarcoid (10).

The tests include D_{CO} at medium and low pO_2 by methods described in the above paper. Groups 3, 4, 5 and 6 showed reduced D_{CO}; severe sarcoid disease also produced low values.

The authors admit that uneven distribution of inspired gas will cause error in D_{CO}. They demonstrate that the ratio of residual volume to total lung capacity, which increases with age and in emphysema, correlates highly ($r = 0{\cdot}90$) with their index of uneven ventilation.

Blood transfusion and phlebotomy, by their effect on haemoglobin concentration, produced respectively a rise and fall in D_{CO}. Pneumonectomy usually produced a fall in D_{CO}. *M. L. Thomson*

NEGRI, M. & TOZZI, A. Atteggiamento evolutivo della tubercolosi polmonare in soggetti silicotici. [**The Course of Pulmonary Tuberculosis in Silicotic Patients**] *Lotta c. la Tuberculosi.* 1958, June–July, v. 28, Nos. 6/7, 562–8. [15 refs.] English summary (3 lines).

The authors at the sanatorium run by the INPS (National Institute of Social Insurance) at Grosseto (Tuscany) have endeavoured to improve the differential diagnosis between pure silicosis and silico-tuberculosis. Grosseto is the centre of large pyrites deposits, and the patients were all miners at the mines nearby, which have a high SiO_2 content. None had had tuberculosis before starting the mining work.

The authors state that in view of the almost immediate recourse to chemo-antibiotics, the silico-tuberculous patients are often sputum-negative, exudative tuberculous phenomena are often absent, and while tomograms in silico-tuberculosis frequently are suggestive of primary tuberculous bronchopneumonia, the symptoms are slight, so that the syndrome can almost unhesitatingly be attributed to the modification of the tuberculous infection by the silicotic background.

70 patients seen over a period of some years were divided into the 3 recognized stages of silicosis as follows: I, reticulation 13(6); II, reticulo-nodular or nodular 10(2); III, pseudotumoural 47(16). The figures in brackets refer to 24 patients included in a table, 18 of whom were sputum positive. Patients in stage III were most often sputum positive and the authors have the impression that in this stage the tuberculous process progresses more easily to the ulcerative open stage, while some of the exudative forms are more frequent in stages I and II and are very rare in stage III. The clinical and X-ray picture of ulceration and fibrocavitary forms in stage III sometimes resembles haematogenous tuberculous bronchopneumonia, but the tuberculosis seems to be milder than the disease picture suggests. This is due to changes in the lung parenchyma caused by the silicotic process. 35 of the 70 patients were over 50 years old and 9 over 60. Of the 70 patients 18 were sputum positive. 15 of these were in stage III. *W. K. Dunscombe*

KOVALEVICH, I. A. Pneumoconiose expérimentale causée par les diatomites et le tripoli. [**Silicosis from Diatomaceous Earth**] *Arkiv Patologii.* 1957, v. 8, 18–24, 4 figs. [In Russian.]

Research was undertaken into the pathogenic powers of diatomaceous earths. A single dose of 50 microgrammes of dust per cubic centimetre of physiological saline solution was introduced into the lungs of 70 rats by intratracheal injection. A typical experimental silicosis developed. In 13 rabbits, silicosis developed more slowly. Where the diatomite was given to 17 rats in a dust concentration of 75 to 130 microgrammes of dust per cubic metre, silicosis similarly developed more quickly than in rabbits.

Examination of workers in diatomite demonstrated the possibility of types I and II of silicosis and, more rarely, of silico-tuberculosis.

These facts showed that diatomite dust containing from 70% to 87·6% of amorphous silicon dioxide can lead to the development of silicosis in certain industries. *A. Policard*

MIKHALOVA, C. Sur la pathogénie et la thérapeutique expérimentale de la silicose pulmonaire du point de vue de la régulation neurohormonale. [**Effects of Corticotrophin (ACTH) on the Development of Experimental Silicosis**] *Arkiv Patologii.* 1957, v. 8, 11–18. [In Russian.] English summary.

The effects of the hormone corticotrophin (ACTH) on the development of experimental silicosis in rabbits were studied. 0·1 microgramme per kilogramme, with the addition of adrenaline, was used on 30 animals and the effects studied by radiological and histological methods. Of 20 animals so treated and exposed to dust, 1 only showed nodules of silicosis with dust cells (5%); of the 10 controls, 5 had the nodules (50%). *A. Policard*

MCCALLUM, R. I. & NEWELL, D. J. **Pneumoconiosis of Coal-Miners in Three Northumbrian Collieries.** *Brit. J. Indust. Med.* 1958, July, v. 15, No. 3, 178–87, 4 figs.

The radiological prevalence of pneumoconiosis among coal-miners at 3 Northumbrian collieries has been measured. 2,898 miners were examined by X-ray, representing 85% of the working population. Nearly 25% of the men had pneumoconiosis, category 1 or more, 11% category 2 or more, and 0·5% progressive massive fibrosis. The results are compared with similar studies in Durham [this *Bulletin*, 1956, v. 31, 414] the Rhondda Fach [*ibid.*, 1951, v. 26, 614] and the reasons for the differences are discussed.

" Compared with the results of similar surveys in four Durham collieries there is much less pneumoconiosis of radiological category 2 or more in Northumberland but there is about 5% more category 1 pneumoconiosis. The Northumbrian pits are found to have only a fifth of the progressive massive fibrosis found in Durham.

" Prevalence of pneumoconiosis in Northumberland reaches the same levels as in Durham between five and 13 years later, and much later than in the Rhondda Fach, but at 60 years of age the prevalence is the same in all three areas. This may be because there is less disabling pneumoconiosis in Northumberland.

" Pneumoconiosis of category 1 and occasionally of category 2 was observed amongst blacksmiths and screeners, who had done less than six months on facework, suggesting that the dustiness of these jobs requires control.

" It is probable that more friable coal and a high proportion of low seams worked in Durham compared with Northumberland are the most important factors in the difference in prevalence of pneumoconiosis in the two areas." *A. L. Cochrane*

Fellmann, N., Alpstäg, H. & Del Buono, M. Polyarthritis und Silikose. **[Polyarthritis and Silicosis]** Reprinted from *Ztschr. f. Rheumaforsch.* 1958, June, v. 17, Nos. 5/6, 217–26, 2 figs. [26 refs.]

Among 527 patients with polyarthritis seen at a rheumatism clinic in 1948–1955 there were 8 cases of silicosis. 4 of these had intervertebral disk lesions and were excluded. [How many of the 527 patients had similar disk lesions is not stated.] The prevalence of silicosis in cases of polyarthritis is given as 4 in 527 or 0·75% which is not significantly higher than figures quoted for the general population.

On the basis of these findings and a consideration of the literature the authors conclude that silicosis does not predispose to rheumatoid arthritis and that, therefore, the occurrence together of the two diseases is fortuitous. Furthermore they claim that while silicosis may modify the clinical picture of rheumatoid arthritis, no specific lesions are found.

[These conclusions hardly seem justified from the evidence presented. The prevalence of silicosis in a rheumatic clinic clearly depends on the number of people with silicosis in the community from which its patients come. This is not known in the present instance and little meaning can therefore be attached to the figure of 0·75% given.

A chance association between silicosis and arthritis is at variance with the conclusions of some of the authors whose papers are quoted in its support. For example Miall, studying a whole community (*Ann. Rheumatic Dis.*, 1955, v. 14, 150) found that although there was no excess of rheumatoid arthritis in miners compared with non-miners, there was a striking and significant excess of massive fibrosis and tuberculosis in those miners with rheumatoid arthritis.

Finally, the authors make it clear that none of the 4 cases described resembled the Caplan syndrome (this *Bulletin*, 1953, v. 28, 831) in which there is no doubt that characteristic changes in the chest X-ray picture occur.] *I. T. T. Higgins*

Kantor, M. & Morrow, C. S. **Caplan's Syndrome. A Perplexing Pneumoconiosis with Rheumatoid Arthritis.** *Amer. Rev. Tuberculosis.* 1958, Aug., v. 78, No. 2, 274–81, 2 figs. [12 refs.]

" Multiple, well-defined, round opacities appearing in the lungs of patients with pneumoconiosis have been described by Caplan as being frequently associated with rheumatoid arthritis. This may be defined as Caplan's syndrome. However, the Caplan type of pulmonary lesion may appear in the absence of rheumatoid arthritis.

" A case demonstrating this syndrome, apparently the first to be reported in the American literature, has been presented. There was present, in addition, calcific aortic stenosis, which may be etiologically related to the rheumatoid arthritis.

Experience at this hospital indicates that the Caplan type of pneumoconiosis is a rare occurrence. The case reported is the only one found in a review of 150 patients with anthracosilicosis, 15 of whom had associated rheumatoid arthritis and 35 of whom had complicating silicotuberculosis."

Campbell, J. A. **A Case of Caplan's Syndrome in a Boiler-Scaler.** *Thorax.* 1958, Sept., v. 13, No. 3, 177–80, 4 figs.

Cases of Caplan's syndrome [this *Bulletin*, 1953, v. 28, 831] or rheumatoid pneumoconiosis so far published in Great Britain have been in coalworkers. In other countries this condition has been recorded among workers, male and female, exposed to the inhalation of dust in a variety of occupations.

A ship's boiler-scaler, aged 62 years at his death, who had followed this occupation for 31 years, had to give up his job in 1939 on account of " chestiness ". Thereafter he worked as an electrician's mate until 1951, when he developed extensive rheumatoid arthritis. A chest radiograph taken at this time revealed pneumoconiosis in the form of very fine reticulation. Eighteen months later nodular shadows appeared in both upper zones. Repeated examination of the sputum for tubercle bacilli was consistently negative. The patient subsequently suffered acute exacerbations of the arthritis and concurrently the rounded opacities in the lung fields increased in number and size. Death from congestive heart failure occurred at the end of January 1957.

Examination of the lungs at necropsy revealed numerous small pigmented fibrous nodules—1–5 mm. in diameter—with perifocal emphysema. Histologically these lesions were identical with coalworker's pneumoconiosis. In addition there were larger circumscribed nodules measuring up to 4 cm. in diameter in both lungs. These nodules showed the characteristic microscopic appearances of rheumatoid lung changes as described by Gough and his co-workers [*ibid.*, 1956, v. 31, 165]. There was no evidence of tuberculosis.

A. Meiklejohn

Caplan, A., Cowen, E. D. H. & Gough, J. **Rheumatoid Pneumoconiosis in a Foundry Worker.** *Thorax.* 1958, Sept., v. 13, No. 3, 181–4, 6 figs. [15 refs.]

A man aged 48 years was first seen in November 1952, when he complained of pains in both shoulders and inability to straighten his right elbow. At this date he was employed as a crane driver at an iron foundry, but previous to this he had worked in the same place, as a sandblaster and steel fettler. [Owing to the recorded differences in the dust hazard between iron and steel foundries, it is unfortunate that it is not explained how the workman was steel fettling in an iron foundry: possibly it was a mixed foundry.]

At his first examination a radiograph of the lungs showed, in addition to category 1 pneumoconiosis, a round opacity about 1 cm. in diameter in the right upper zone and a group of small irregular opacities in both lower zones. Apart from short spells in hospital for treatment of the arthritis, the patient continued to work as a crane driver. The lung opacities increased in number and size and the precise diagnosis remained in doubt. In May 1957, open thoracotomy was performed and a portion of lung from right lower lobe was excised for further examination. The biopsy tissue contained a nodule 4 mm. in diameter. It showed the characteristic histological appearances of rheumatoid pneumoconiosis except that there was no endarteritis. The pneumoconiosis was of coalworkers' type. The authors very rightly emphasize the need to include the rheumatoid pneumoconiosis syndrome in the differential diagnosis of multiple round opacities in chest radiographs and so diminish the necessity for thoracotomy.

A. Meiklejohn

Rickards, A. G., & Barrett, G. M. **Rheumatoid Lung Changes associated with Asbestosis.** *Thorax.* 1958, Sept., v. 13, No. 3, 185–93, 7 figs. [36 refs.]

A man aged 49 years developed severe rheumatoid disease. About one year after the onset of joint pains he died of acute influenzal pneumonia. At necropsy numerous necrobiotic foci of rheumatoid type were observed in the lungs. These foci were superimposed upon extensive asbestosis. This is the first recorded case of rheumatoid pneumoconiosis in which the dust was asbestos. For 4 years the deceased had been employed at a factory in mixing calcined diatomaceous earth with asbestos.

The emphasis of the paper is on the histopathology of the lesions, which are well illustrated by 6 half-page figures.

In discussing the pathogenesis of the necrobiotic foci in the lungs the authors suggest that actual silica particles play a more important part than the presence of pre-formed collagen in the production of these lesions.

A. Meiklejohn

Cummins, G. E. L., Yeoh Seang Aun & Davies, T. A. L. **Kaolin Pneumoconiosis.** *Med. J. Malaya.* 1958, June, v. 12, No. 4, 613–17, 3 figs.

In Singapore, china clay (kaolin) is dug from deposits which occur within a few feet of the ground surface. The clay is crushed, dried, sieved and bagged by hand but in some factories there is machine grinding. The finished product is used in the rubber industry as a filler and parting powder. [It should be noted that in the local industry this kaolin powder is named "talc". This may lead to confusion in the literature for some author may wrongly describe or cite the resultant pneumoconiosis as talcosis.]

The sieving is carried out by young girls—in fact, children—who rock the sieves, which are suspended from the roof, backwards and forwards. Conditions are extremely dusty, as exemplified by counts carried out at two factories. Dust counts (thermal precipitator) varied between 1,420 and 4,840 particles per cc. of air: all particles were below 5 microns, indeed the great majority under 2 microns in diameter.

3 cases of kaolin pneumoconiosis are described in detail, and supplemented by the findings of a survey made at a factory employing 7 workers. The very alarming results are summarized in the following table.

Summary of the radiographic appearances of the chest of 7 persons currently employed in a kaolin works where hand sieving is undertaken and of 3 patients reported in this paper

	Sex	Age (years)	Reputed exposure	X-ray of chest PRU classification
	M	47	4 years	Equivocally Normal, (O).
	F	42	2 months	Normal, (O).
	F	16	1 year	Simple pneumoconiosis, (2p/–/–).
	F	13	1 year	Normal, (O). Small calcification under 2nd right rib.
	M	8	1 month	Normal, (O).
	M	28	5 years	Complicated pneumoconiosis, (3m/B2/3).
	M	13	3 months	Normal, (O).
Patient No. 1	F	23	4 years (intermittently)	Complicated pneumoconiosis, (?3m/D5/4).
Patient No. 2	F	26	2 years	Complicated pneumoconiosis, (3m/D1/1).
Patient No. 3	F	32	? intermittently in childhood	Simple pneumoconiosis, (3m/–/–).

It is of interest to note that the first and second patients, exposure occurred respectively between the ages of 8 and 12 and 15 and 17 years. Patient No. 3

was a tuberculosis contact and her radiograph showed egg-shell calcification of hilar glands which is clearly apparent in reproduction. The authors submit the need for dust suppression to prevent the hazard, if need be through legislation.

[The real interest of this series of cases is in the matters, which by inference, they underline. The disease was due to employment, which the patients had left many years previously, hence the importance of careful recording of the employment history of all patients. The cases recall the original cases of silicosis among flint crushers and female scouring-powder workers. In such circumstances minimization of dust is not enough, there must be concurrent vigilant control of tuberculous infection not only generally in the community but particularly in each factory group. Most of all, these cases emphasize how slowly and painfully we learn by experience: the same harmful circumstances and effects are permitted to recur and become the subject of a group of *interesting* cases.]

A. Meiklejohn

Oyanguren, H., Haddad, R. & Maass, H. **Stannosis. Benign Pneumoconiosis owing to Inhalation of Tin Dust and Fume. I. Environmental and Experimental Studies.** *Indust. Med. & Surgery.* Chicago. 1958, Sept., v. 27, No. 9, 427–31, 2 figs.

Schuler, P., Cruz, E., Guijon, C., Maturana, V. & Valenzuela, A. **II. Clinical Study.** *Ibid.*, 432–5, 4 figs. [15 refs.]

Ia. Environmental

Tin forms 2 oxides, stannic and stannous. Among workmen engaged in processing stannic oxide several observers in various countries have recorded cases of pneumoconiosis. This stannic oxide pneumoconiosis is usually named stannosis.

At a foundry in Santiago, Chile, Bolivian tin ore concentrate is reduced to metallic bars. The concentrate is composed mainly of tin together with lesser quantities of other metals and impurities. Silicon dioxide is present to the extent of 1%. The concentrate is first ground in a mill, which is enclosed in a hermetically sealed chamber. Impurities are then removed by a series of chemical treatments; the resultant material is pressed into blocks, which are smelted in electric furnaces and cast into bars. The operations are only carried out for 6 months each year so that the majority of the workmen are casual labourers. Only a few highly skilled workmen are regularly attached to the plant. These men, particularly those employed in the furnace section, are exposed to dust of high tin and low silica content and to fume rich in tin. As the free silica content is only a trace, it is contended that it has no pathogenic action.

Ib. Experimental

Three groups of 18 guineapigs were injected intraperitoneally with the materials from the milling, pressing and smelting processes. These were killed in batches of 6 after 30, 60 and 90 days. The reactions were practically identical for the various materials and no difference was observed over the range of periods. Macroscopic examination showed tawny-gray nodules, 5–10 mm. in diameter, mostly flattened; a few were slightly raised. Histologically the nodules were mainly composed of the injected foreign material. The greater part was extra cellular, enclosed in a non-specific, chronic granulomatous tissue and with practically no evidence of collagen fibrils. Neither foreign body cells nor necrosis were observed. These findings correspond to what is known as the inert reaction. The authors predict that the tin concentrate dust, which is inert for the peritoneum, will behave in the same manner when inhaled into the human lung.

II. Clinical

19 workmen, who had been exposed to the inhalation of tin oxide dusts and fumes in the plant described above were examined. The investigations included clinical, radiographic and electrocardiographic examinations; blood and urine tests and measurement of pulmonary function. All the examinees were males, the large majority under the age of 30 years. 9 had been exposed for less than 3 years and only 2 over 12 years. Stannosis of varying degree was identified in all the cases exposed for more than 3 years, while 8 of the others were classified as suspect. The stage of the disease advanced with increased length of exposure. The blood and urinary findings and pulmonary function were within normal limits in all cases. Data and findings are summarized in 5 tables. The authors conclude that the chest radiograph presents the single positive finding in stannosis. The characteristic feature is nodulation, which increases in degree and extent with the severity and duration of exposure. Finally they submit that tin oxide fume is more likely to be the cause of stannosis than tin oxide dust. Stannosis is a benign pneumoconiosis due to an inert dust or fume.

A. Meiklejohn

Vorobieva, R. S. Maladies pulmonaires professionnelles par action prolongée d'aérosol d'oxyde de cadmium. [**Pulmonary Fibrosis from Cadmium Oxide**] *Arkiv Patologii.* 1957, v. 8, 25–9, 3 figs. [In Russian.] English summary.

Radiological observation showed 5 cases of diffuse pulmonary fibrosis among 18 workers who had been exposed to cadmium oxide, iron-cadmium and nickel-graphite dusts.

Experimental studies on rats were carried out to confirm these facts.

Tracheal injections were given to introduce into the lungs, per 100 grammes body weight, 0·25 microgramme cadmium oxide, or 0·35 microgramme of a mixture of cadmium and iron, or 2 microgrammes of a mixture of carbon and graphite. From the animals killed after 4, 6 and 8 months, it is possible to establish histologically that cadmium oxide leads to interstitial pneumonia and pulmonary fibrosis. In certain cases, nodules were observed consisting of epithelioid cells and fibroblasts.

A. Policard

Gombos, B. [**Pulmonary Nodulation by inhaling Barium Dust**] *Pracovni Lekarstvi.* 1957, v. 9, No. 5, 399–401. [In Czech.]

In the radiological examination of 14 women workers employed in crushing baryta and talc, 2 of them after

11 and 16 years at this work showed images which were very different from those of the pneumoconioses usual in the district.

Very fine nodules with the appearance of fine sand on a highly reticulated background were seen. Their outlines were clear and well contrasted. From the clinical viewpoint, no symptoms were observed of bronchitis or of emphysema, but there were good indications of pulmonary barytosis, the dust breathed in containing from 65% to 95% of barium sulphate.

The intervention of talc can be discounted, since in fact in 60 women working solely on talc, often for 20 years, only a linear reticulation without nodulation could be found.

In the 2 cases, the mineral contained about 10% silica. The absence of nodules in the case of talc shows that silica does not play a part in the formation of nodules. *A. Policard*

Schepers, G. W. H., Durkan, T. M., Delahant, A. B., Redlin, A. J., Schmidt, J. G., Creedon, F. T., Jacobson, J. W. & Bailey, D. A. **The Biological Action of Fiberglas-Plastic Dust. An Experimental Inhalation Study of the Dust generated in the Manufacture of Automobile Body Parts from a Commercial Product with a Calcium Carbonate Filler.** *Arch. Indust. Health.* Chicago. 1958, July, v. 18, No. 1, 34–57, 16 figs. [10 refs.]

The full commercial name of the product used in the following dusting experiments is " Fiberglas-reinforced calcium carbonate filled polymerized polyester resin ". The material is used in the fabrication of motor-car bodies. In the course of their work the workmen are exposed to substantial quantities of respirable dust particularly in sawing, sanding and burnishing processes. The manufacture of the fiberglas is described in detail. In previous experiments cited [Schepers, this *Bulletin*, 1956, v. 31, 37], the action of the glass and calcium constituents were investigated individually. The present enquiry was directed at the biological effects of the pulverized conglomerate of Fiberglas, plastic and calcium carbonate in the form in which it was encountered in a typical industrial operation.

The observations were made on 3 varieties of animal, comprising 140 guineapigs, 36 rats and 12 rabbits. These were experimentally exposed to inhalation of dust in a chamber measuring 8 × 8 × 8 ft. Very intensive concentrations of dust were generated and measured weekly by midget impinger, supplemented approximately once a month by electrostatic precipitator. In counting the dust particles, determinations were made both of the particles larger and smaller than 10 microns. The mean count of particles less than 10 microns was 338,000,000 per cubic foot, equivalent to 4·6 mgm. per cu. ft. These concentrations conform closely to those used in comparable experimental investigations of silicosis. The intensity of dust exposure was not uniform throughout the chamber; the animals in a cage close to the point of dust production were more heavily exposed than others and were the subject of special study. As controls, 100 guineapigs, 100 rats and 50 rabbits, which were never exposed to dust, were used. In addition to observation of the general health of all the animals, particular studies were made of the histopathological changes in the lungs, and chemical analyses of lung ash. Special observations made in the rabbits included measurement of cardiac pressures and lung function and haematological and radiological examination.

Limited pulmonary reactions were produced by the Fiberglas-Plastic dust chiefly in the guineapigs. The responses were similar to those regarded as characteristic of " inert " dusts and on termination of the dust exposure the pneumoconiotic lesions underwent resolution.

A parallel controlled investigation was made in which guineapigs were infected with a strain of tubercle bacilli and thereafter exposed to the dust. The inhaled Fiberglas-Plastic dust sporadically and moderately stimulated the tuberculous infection. This enhanced response was self-limited despite continued dust exposure. The tuberculous process retarded and diminished the pneumoconiotic response.

A tentative tolerance limit of 1 mgm. of Fiberglas-Plastic per cu. ft. (50,000,000 per cu. ft. approximately) of air is recommended for the purpose of plant hygiene. *A. Meiklejohn*

Dimmick, R. L., Hatch, M. T. & Ng, J. **A Particle-Sizing Method for Aerosols and Fine Powders.** *Arch. Indust. Health.* Chicago. 1958, July, v. 18, No. 1, 23–9, 4 figs. [14 refs.]

The method described is intended for estimating particle size distributions of dust clouds under conditions of stirred settling, when the concentration of particles of given size decays exponentially. The decay in the intensity of light scattered at 90° is measured, and the scattering plotted on a logarithmic scale against time. The curve obtained gradually approaches a straight line, from whose slope the sizes of the smallest particles are estimated. The straight portion is then extrapolated back to zero time and subtracted from the original curve, the difference being used in the same way to determine a next smallest group of particles. The process can then be repeated. The method is applicable only to clouds of particles which are uniform in density and optical properties, and which are sufficiently nearly spherical to fall in accordance with Stokes's Law. [The method of deriving particle size distribution from the measured quantities appears to be susceptible to considerable errors, which are not assessed.] *J. McK. Ellison*

Landwehr, M. Untersuchungen über die elektrostatische Aufladung von Stäuben in Bergwerksbetrieben. [**Investigation of the Electrostatic Charge on Mine Dusts**] *Staub.* Düsseldorf. 1958, Sept. 1, v. 18, No. 9, 269–79, 23 figs. [14 refs.]

Experiments carried out in several mines are described in which the sign of the electric charge upon airborne dust particles was studied. It was thought that the results might suggest a method of dust suppression without the use of water and could conceivably have a bearing on the pneumoconiosis risk from inhaled dust.

It was found that the charge on quartz particles was almost always negative whereas coal, calcite and other carbonates were positively electrified. Felspar, mica and similar silicates carried varying negative charges while clays were only slightly charged with either sign. There was a tendency for the magnitude of the charge to rise with high ventilation velocities which, in the case of rock salt, caused a reversal of the sign to positive.

C. N. Davies

TEMPEST, M. N. & ATKINS, J. B., with the collaboration of S. B. DAVIS. **The Influence of Clothing on the Pattern and Severity of Burns studied in some Recent Colliery Fire-Damp Ignitions.** *Brit. J. Indust. Med.* 1958, July, v. 15, No. 3, 147–57, 6 figs.

"Recent reports have demonstrated the important role of flammable clothing material in domestic burning accidents", ". . . but in industry little emphasis has so far been laid on the problem." In this paper the authors describe the study of 4 recent colliery gas ignitions which resulted in burns to 13, 11, 19 and 23 men, respectively. The material for study in these 66 cases consisted of detailed records of the extent, distribution and severity of the burned area with necropsy findings in most of the 28 cases which proved fatal. So far as possible details of the clothing worn by each man were obtained and the extent to which each article was burned was recorded. The results of the extensive study are described at some length with illustrative photographs and drawings in sections on burns of unclothed areas, burns from failure of clothing protection, burns due to ignition of clothing, inhalation burns, carbon monoxide poisoning and flammability of miners' clothing. Separate sections deal with burns of the hands, burns of the scalp and burns of the axilla. A table gives information of each man who was burned—age, survival, percentage of skin burned in areas protected and not protected by clothing.

Some of the conclusions from this study are that although clothing has a protective function, this is lessened by the liability of the clothing now commonly worn by miners to ignite and many of the more extensive and severe burns are the result of the clothes catching fire. Existing types of clothing probably increase the risks of burns of the respiratory tract and of the hands and perhaps also of carbon monoxide poisoning. A striking feature of this experience was the frequency of deep burns of the scalp and of head injuries which suggests that the present type of miner's safety helmet needs consideration. *M. E. Delafield*

GUERDJIKOFF, C. Étude de quelques risques de saturnisme en Suisse. [**A Study of some Industrial Lead Hazards in Switzerland**] *Ztschr. f. Unfallmed. u. Berufskrankh.* 1958, June, v. 51, No. 2, 85–122. [Numerous refs.]

This report, presented at a meeting of the Swiss Society of Industrial Medicine and Accidents, is concerned only with industries of various kinds in Switzerland in which there may be a danger to health of the workers from exposure to lead. These industries are described and an account is given of the results of investigations which have been carried out in each case but with stress on the point that every separate factory in each industry must be separately considered because of the variations in such factors as hygienic state, degree of ventilation and the human factor which may have a determining effect on the occurrence of lead intoxication.

The methods employed in air analyses are described with a statement of opinions on the permissible limits of the lead concentration in the air of factories. The processes in different industries where lead may be a risk are considered at some length with an account of the conditions which were found on inspection of individual factories. The industries which have been studied are:—the manufacture of accumulators, the building industry—protective lead paints and demolition work, lead smelting, manufacture of lead-containing bronze, manufacture of polyvinyl plastics in which lead-containing stabilizers are used, pottery work, some types of enamelling, printing, manufacture of telephone cables sheathed in lead and chemical and other works.

Emphasis is laid on the point that accurate scientific and other investigations are essential before the best possible control and prevention of lead poisoning can be achieved. *M. E. Delafield*

NICOLET, S. La prévention du saturnisme. [**The Prevention of Lead Poisoning**] *Ztschr. f. Unfallmed. u. Berufskrankh.* 1958, June, v. 51, No. 2, 122–9.

In this paper there is a list of 15 industries and occupations in which a lead hazard may exist with short accounts of 10 cases of lead poisoning and the ways in which the patients had absorbed the metal.

Lead intoxication is slowly diminishing in frequency in Switzerland where the annual number of persons compensated has been reduced from 37 in 1945 to 26 in 1954.

A short account is given of the prevention of lead poisoning which is based on:—(1) recognition of the risk, (2) elimination of the risk, (3) general hygienic measures, (4) personal hygiene, (5) medical examination before engagement and at intervals thereafter, and (6) education in security of all who may be at any time working with lead, which includes engineers, foremen and workers. *M. E. Delafield*

MOESCHLIN, S. Klinik und Therapie der Bleivergiftung. [**The Clinical Picture and Therapy of Lead Poisoning**] *Ztschr. f. Unfallmed. u. Berufskrankh.* 1958, June, v. 51, No. 2, 129–49, 9 figs. [Numerous refs.]

This is a long paper in which the author gives an account, with many references, of lead poisoning as it occurs and is treated at the present day. Although lead poisoning has become much less common, typical cases of it still occur but many of these remain undiagnosed. The account deals with the ways in which lead is absorbed into the body and the sources of the poison in industry with mention of tetra-ethyl lead in engine exhausts. The mode of action of lead, particularly on the blood and nervous systems, and the amounts of lead found in the blood serum and the urine, are described. Clinical symptoms and signs are considered at length with an account of methods used for the analysis of the urine for porphyrins and of the blood for cellular changes. There is a discussion of the significance of the findings of these examinations. Specific and symptomatic therapy in cases of lead poisoning is described at some length, with particular reference to the value of sodium citrate in some circumstances and of CaNaEDTA. Particular attention is given to CaNaEDTA, which though very powerful in bringing about rapid excretion of lead may have adverse effects. These have been recorded by other workers, and have been experienced in the author's practice [this *Bulletin*, 1956, v. 31, 833; 1957, v. 32, 1171]. It is recommended that CaNaEDTA should be used in doses lower than those that have often been employed. The scheme of treatment for adults advocated in this paper is: not more than 20 mgm. of CaNaEDTA per kgm. of body weight given by drip infusion or not more than 2·0 gm. by mouth daily for 3 days, then 3 days' pause. This sequence may then be repeated 5–10 times according to the clinical picture. This treatment must be carefully controlled by urine examinations and stopped at once if marked albuminuria is found.

A comment made at the end of the paper is that although the industrial worker is nowadays so well shielded from exposure to lead it is a tragedy that in Switzerland about 300,000 kgm. of lead derived from tetra-ethyl lead in motor spirit are annually voided into the atmosphere. In the course of time this lead may exercise its toxic action on the general population.

M. E. Delafield

HÖGGER, D. Die Tätigkeit der eidgenössischen Bleibenzinkommission von 1947 bis 1957. [**The Work of the Swiss Commission on Tetra-ethyl Lead, 1947–1957**] *Ztschr. f. Unfallmed. u. Berufskrankh.* 1958, June, v. 51, No. 2, 150–57, 1 fig.

A Commission was set up by the Department of the Interior in Switzerland in 1947 to study the effects of tetra-ethyl lead, officially permitted to be added in specified amounts to motor spirit in 1947, on the health of those who worked with the spirit and on the health of the general population. Certain regulations were first introduced and these included general precautions in garages and in the storage of the ethyl spirit. Petrol containing tetra-ethyl lead must be coloured and its containers must be specially marked. Its use for any other purpose than as motor fuel was prohibited. A number of investigations relating to the subject have been carried out and reports on several of these have been published [this *Bulletin*, 1958, v. 33, 140]. Reports of these studies are given in this paper with tables of results. The data so recorded are the tetra-ethyl lead content of various motor fuels in different years, the lead content of exhaust gases, the lead content of the dust in streets with little or much traffic, the lead content of the air, the extent to which lead in air or dust is retained in the lungs when inspired, the daily intake of lead by food or water or inspiration of the element in dust and gases and the lead content of the blood of medical students, garage personnel and workers in lead.

The conclusion reached by the Commission, to whom all cases of suspected lead petrol poisoning have to be reported, is that no danger from the lead was established except in isolated cases in workers with aeroplane spirit, which contains much more tetra-ethyl lead than does the treated motor-car spirit. In the discussion which followed the presentation of the report the opinion based on it was that at present in Switzerland there was no lead risk and that, judging by the experience of other countries, it was unlikely that a dangerous concentration of lead in the atmosphere would be built up. Nevertheless, the continuation of measures of control is essential. Some doubts about the safety of the present state of affairs and anxiety about the future were, however, also expressed.

M. E. Delafield

CACCURI, S., PECORA, L., FATI, S. & VECCHIONE, C. Recherches sur la porphyrinogenèse dans le saturnisme. [**Biosynthesis of Porphyrins in Lead Intoxication**] *Arch. Malad. Professionnelles.* Paris. 1958, July–Aug., v. 19, No. 4, 341–6. [28 refs.]

In this paper the authors discuss in some detail the literature on the synthesis of porphyrins in lead intoxication and other disease states. In some experiments which are described it was found that the addition of homogenates of various normal rabbit tissues to a mixture of red blood cells and glycine did not bring about any increase in the amount of protoporphyrin which is normally produced on incubation of the red-cell-glycine mixture alone. On the other hand the addition of homogenates of tissues of rabbits poisoned by the oral administration of lead acetate brought about a very considerable increase in the amount of protoporphyrin produced. Lung tissue had the most stimulant action but liver, bone marrow and spleen homogenates also effected an increase in the synthesis of protoporphyrin. The numerical results, set out in tables, are discussed.

M. E. Delafield

HAINE, J. E. **Vanadium Poisoning.** *Med. Officer.* 1958, Aug. 15, v. 100, No. 7, 115–16.

Vanadium is widely used, especially in the production of special steels, but is also present in widely varying amounts in many natural mineral oils. On combustion of the oil the vanadium in it is usually converted into the pentoxide V_2O_5 which is poisonous. This paper reports on vanadium poisoning in an entire boiler-room staff of 5 men, all of whom were invariably affected after the monthly boiler cleaning operation. At other times some suffered intermittently, and 1 continuously, from symptoms of poisoning. The chief symptoms were marked lassitude, general malaise of varying degree, irritation of the nose with occasional epistaxis, pain and tightness of the chest and some sickness. The boiler-house, which is entirely new and of unconventional construction, is described. Air and soot analyses were carried out by the Department for Research in Industrial Medicine of the Medical Research Council and the results of these, which are set out, showed that the men were exposed to high concentrations of vanadium at various stages of their work.

Vacuum extraction of boiler soot was introduced, and the ventilation of the boiler-house was improved by installing large fans. These measures and the supply of an improved type of mask have been followed by the disappearance of all symptoms of sickness among the staff. *M. E. Delafield*

NEOGI, T. P. **Chronic Manganese Poisoning and its Prevention.** *Alumni Ass. Bull.* Calcutta. 1958, Apr., v. 7, No. 9, 39–42.

Although there is a considerable manganese mining industry in India no case of poisoning there from this metal has hitherto been reported. A number of cases were found by the author among miners in Chhindwara.

The earlier patients were brought to him for certification as mentally unbalanced and unfit for work; they would laugh away their time rather than work. He seems to have found a number of other cases [how many is not stated], particularly among men doing dry drilling. Exposure of those with symptoms varied from 6 months to 4 years.

Clinical symptoms commonly found included muscular pain and weakness, clumsy movements, asthenia, anorexia and insomnia. Impotence was a complaint in 50% of cases and cough in 20%. Patients were emotional and would burst out laughing on the slightest provocation.

[No attempt is made in this article to set out in detail the numbers affected or the incidence of particular symptoms. Nor are there any details as to the intensity and exact nature of the dust to which the patients had been exposed.] *T. O. Garland*

VOROBJEVA, R. S. Zur Frage der gewerblichen Vergiftungen mit Kadmiumoxyd. **[The Question of the Toxicity of Cadmium Oxide]** *J. Hyg., Epidemiol., Microbiol. & Immunol.* Prague. 1958, v. 2, No. 2, 244–9, 2 figs. on pl.

Some conflict of opinion has been expressed in the literature on the toxicity of cadmium, which has come to be used to a very large extent in the atomic industry, the manufacture of alloys, alkaline accumulators and dyes and in other processes. In this paper there is an account of the health survey of 154 workers in cadmium who had been exposed to cadmium oxide dust for varying periods of time. Of these 63·7% had been so exposed for more than 3 years. The concentration of cadmium in the air of their work places ranged from 0·1 to 15·1 mgm. per cubic metre of air and the size of the cadmium oxide particles was up to 2·0 μ in 96% of them. As a control in the survey a group of 50 workers not exposed to cadmium was chosen.

The subjective symptoms of poisoning which were found among the cadmium workers were headache, anorexia, loss of the sense of smell, nausea, giddiness, irritability, sleeplessness and epistaxis. The frequency of these symptoms is set out in a table. Clinical examination showed that 70% of the cadmium workers had some affection of the respiratory tract—mostly a chronic rhinitis of atrophic character. In 5 workers the early signs of pulmonary fibrosis were demonstrated. A sign of cadmium poisoning which appears after 1–2 years and sometimes shorter exposure was a light-yellow to brown-yellow discoloration of the necks of the teeth. Evidence of hepatitis and of cholecystitis was found with relative frequency. A considerable part of the paper is devoted to an account of the effects of cadmium exposure on the nervous system which were investigated by means of chronaximetry. These measurements of nervous response—skin, ocular and motor—were found to be increased in the majority of the cadmium workers, when compared with the controls, indicating diminution of function of the cerebral cortex. *M. E. Delafield*

VERGA, L. & BELLONI, F. Su di un caso di porpora da intossicazione da fosfina. (Studio emato-clinico ed isto-chimico.) **[A Case of Purpura due to Phosphine Poisoning.]** *Rass. Med. Indust.* Turin. 1958, May–June, v. 27, No. 3, 230–41, 4 figs. [13 refs.] English summary (3 lines).

In the electrolytic pickling process, with trisodium phosphate, used to protect metals against rusting, there is a possibility that phosphine (hydrogen phosphide, PH_3) may develop. It has a smell like acetylene.

The authors report a case of a man aged 42 who had worked with the pickling process for 4 years, but who for the last 2 years had had recurrent episodes of a macular rash on the lower limbs which resolved spontaneously; epistaxis and general debility occurred later. The patient was admitted to hospital on 3 different occasions with signs and symptoms referable especially to the haemopoietic system, and particularly thrombocytopenia. In addition, bone marrow films showed a special hyperplasia of the megakaryocyte series. In the first two admissions (from which the patient was discharged at his own request) treatment included vitamin compounds, but the bone marrow picture and the thrombocytopenia remained unchanged. On the third admission he was given prednisone, with completely satisfactory results and restoration of the marrow picture to normal. When examined one year later he felt well but had changed his job.

The authors discuss at considerable length the manner in which the bone marrow could have been affected in view of the rather contrasting clinical picture of reduced platelets and hyperplasia of the megakaryocyte series. *W. K. Dunscombe*

LEVINSKAS, G. J., PASLIAN, Marian R. & BLECKMAN, W. R. **Chronic Toxicity of Pentaborane Vapor.** *Amer. Indust. Hyg. Ass. J.* 1958, Feb., v. 19, No. 1, 46–53, 4 figs. [25 refs.]

Recently, the American Conference of Governmental Industrial Hygienists suggested a tentative threshold limit of 0·01 p.p.m. of pentaborane (B_5H_9). The published animal toxicity data deal only with acute and subacute exposures to this chemical. This paper reports the results of studies of its chronic toxicity.

Male mice (CFW), male albino guineapigs, male rabbits (New Zealand Albinos) and male rats (CFW) were employed in a 1·0 p.p.m. study. The latter 2 species plus male rhesus monkeys, female mongrel dogs, and male golden hamsters were used in a chronic study at a level of 0·2 p.p.m. The exposures were conducted for 6 hours daily, 5 days per week. In the study at 1·0 p.p.m. the surviving animals were sacrificed after 20 exposures. The detailed study at 0·2 p.p.m. consisted of 2 groups of animals. 1 group consisted of rats which were to be serially sacrificed at 2-week intervals. The second group was composed of those animals which were to be exposed for the entire period. At the termination of the exposure schedule, the survivors of this latter group had had 128 exposures except for the dogs which had completed 125 exposures. The tests which were performed included haematological and urine studies and assessment of liver function; at the time of sacrifice, the weights of various body organs of the animals were recorded.

The original should be consulted for full details concerning the experimental methods and the results of the experiments. The subacute study at 1·0 p.p.m. resulted in the death of several animals within 4 weeks after 20 exposures. The chronic study was conducted at 0·2 p.p.m. of pentaborane for approximately 6 months. During this period, the animals showed a loss of appetite, weight loss, apathy, docility, decreased physical activity and muscle tremors. Less frequently observed were an insensibility to pain, impaired mobility of the limbs and signs of eye and nose irritation. Despite the number and variety of clinical tests performed upon the animals during this study, not one of these tests was found to be of value in detecting chronic intoxication with pentaborane. The exposed rats did show an elevated hematocrit and the dogs did reveal a slightly impaired ability to excrete bromsulphthalein. However, neither of these two tests was sufficiently abnormal to serve as the basis for making a diagnosis. It is suggested that the vague clinical signs shown during the chronic study might well occur among industrial workers exposed to pentaborane and as it may be a futile quest to seek a biochemical analysis or haematological study which would serve as an index of incipient chronic intoxication, close clinical supervision of exposed personnel is preferable. Where the possibility of prolonged and repeated exposure to this chemical exists, adequate ventilation must be provided to keep the concentration of pentaborane below 0·2 p.p.m.

P. J. R. Challen

FURNAS, D. W. & HINE, C. H. **Neurotoxicity of some Selected Hydrocarbons.** *Arch. Indust. Health.* Chicago. 1958, July, v. 18, No. 1, 9–15. [20 refs.]

The toxicity of the aromatic hydrocarbons is usually referred to the bone marrow and the viscera. This study was designed to provide information on the effect of 8 of the series on the central nervous system.

Rats were given single and repeated exposures, as severe as possible without producing 100% mortality. All those that survived recovered without apparent sequelae. Detailed clinical, histological, pathological and other findings are recorded for each of the series. None caused demonstrable histological damage, though all had a toxic effect on the central nervous system, except the only unsaturated compound, methyl styrene, which was however the most generally toxic and most irritating.

Electroencephalographic tracings showed that *p-tert*-butyltoluene caused profound cerebral stimulation followed by profound depression. The depression produced by benzene was preceded by a more mild excitement.

There is an interesting discussion as to whether these solvents are directly toxic to the tissues or whether the damage may stem from release of autogenous material or from toxic products of tissue decomposition. The authors consider that benzene acts directly, without requiring metabolism for its effects.

T. O. Garland

TALENTI, M., DEL VECCHIO, V. & CAPPUCCILLI, P. Indagine su le condizioni igieniche dei laboratori di lavaggio a secco nella città di Roma. [**Hygienic Conditions in the Dry Cleaning Shops in Rome**] *Rass. Med. Indust.* Turin. 1958, May–June, v. 27, No. 3, 218–29. English summary.

There are approximately 900 dry-cleaning establishments in Rome and this report deals with the results of inspection of 100, together with the results of air sampling, and gives some of the clinical findings in some of the employees. 85 of the 100 were situated below inhabited premises, 3 were partly underground, the rest on the ground floor. In 39 only 1 room was used for all purposes though at least 2 are essential. The number of workers per premises was small and they were mostly family affairs; females greatly predominated.

The great majority had sufficient floor space for the size of machine used, ventilation was fairly good in 91, and the same number had wash basins and latrines. The machines were mostly small but kept in good condition. The small size tends to lessen the period of deodorization in rush conditions.

The trichlorethylene (trilene) content of the air was measured at levels of 0·3 and 1·5 m. above the floor of the shop when the process was being carried on. Trilene was not found outside the shops, but the concentration was above the maximum tolerable limit in 69% when the deodorizing machine was opened and the deodorizing phase was not continued for a sufficiently long time; it should not be less than 10 minutes. Examination of 32 women and 6 men showed 35 with trichloracetic acid in the urine and 12 out of 38 with slight trilene intoxication.

The authors consider that in general the plants were reasonably well maintained but there must be much greater care taken of the activated carbon filters (used for absorbing the trilene) many of which were no longer of any use, while the considerable trilene content of the air in the establishments and the demonstrated absorption in a high percentage of the workers examined suggested that the process was not carried out with the requisite care.

[The number of persons examined was only about 10% of the total number of employees in the 100 premises.]

W. K. Dunscombe

Guild, W. R., Young, J. V. & Merrill, J. P. **Anuria due to Carbon Tetrachloride Intoxication.** *Ann. Intern. Med.* 1958, June, v. 48, No. 6, 1221–7.

This report is a clinical analysis of 20 patients (16 male, 4 female) with anuria due to carbon tetrachloride intoxication seen at the Peter Bent Brigham Hospital, Boston, Mass., between 1948 and 1957. Their ages varied from 23 to 49 years. There were 5 deaths. 10 of these patients underwent haemodialysis with the Kolff-Brigham artificial kidney.

16 of the patients suffered intoxication by inhalation and 4 by ingestion of carbon tetrachloride. 11 cases of intoxication by inhalation resulted from the use of this chemical substance as a cleaning agent. Either cleaning furniture at home or machinery at work was the characteristic story. Usually the room in which the cleaning occurred was poorly ventilated or completely closed. Exposure time ranged from 30 minutes to 11 hours. Of the 4 patients whose poisoning occurred by ingestion, 3 were accidental and 1 suicidal. 16 of the 20 patients had consumed large quantities of alcohol daily for a period of months or years. 14 of these 16 admitted taking alcohol either shortly before, during, or shortly after exposure to carbon tetrachloride.

The earliest and most common symptoms were nausea and vomiting, which manifested themselves from 1 hour to 6 days after exposure. Abdominal pain and costovertebral pain were not uncommon. Other symptoms were headache, confusion and fatigue. All 4 patients with intoxication *via* the oral route suffered severe liver involvement and 11 of the 16 patients suffering intoxication by inhalation had moderate to severe damage. The number of days between exposure to carbon tetrachloride and the development of anuria was often difficult to determine accurately. In those in whom it was possible, it varied from 1 to 7 days, with an average of 3. Anuria persisted from 1 to 15 days, with an average of 8. 12 of the 20 patients had evidence of haemorrhage, manifested as subconjunctival haemorrhages, petechiae or bleeding from the nose. 2 typical case reports are given in the text to illustrate the clinical features. The exact cause of death was often difficult to determine, but clinically and according to post-mortem findings it was thought in most cases to be hepatic insufficiency.

Carbon tetrachloride is soluble in alcohol, and the ingestion of alcohol and carbon tetrachloride simultaneously may tend to increase the absorption of the latter, even if exposure was by inhalation. The chronic drinker often has a fatty liver or definite hepatic insufficiency, in which case the liver would probably be more susceptible to damage (carbon tetrachloride being soluble in fat). It is known that carbon tetrachloride can be oxidized to phosgene, and that phosgene *in vitro* can condense with ethanol to form ethylchloroformate. It would be interesting to determine the toxicity of ethylchloroformate, and to look for its presence in experimental animals exposed to both carbon tetrachloride and ethanol. Recent work in animals has indicated that the kidney may show a definite lesion due to choline deficiency which can be enhanced by alcohol. Possibly the kidney of the chronic alcoholic patient is more susceptible to injury. *P. J. R. Challen*

Pacséri, I., Magos, L. & Bátskor, Ilona A. **Threshold and Toxic Limits of some Amino and Nitro Compounds.** *Arch. Indust. Health.* Chicago. 1958, July, v. 18, No. 1, 1–8. [11 refs.]

7 chemical plants were involved in this study and the following compounds were examined:—acetanilide, ethylaniline, nitroanisole, anisidine, nitrophenetole, phenetidine, chloraniline, nitrobenzene, *p*-nitrochlorbenzene, dinitrochlorbenzene, nitroethylbenzene.

A careful assessment of working conditions including air analysis was made wherever poisoning was considered possible, and the findings are recorded in Table 1.

Parallel with environment studies, personnel were subjected to medical examination including elaborate blood analysis and cell counts. The results are recorded in Table 2.

The authors point out that where symptoms are present it is often doubtful whether poisoning has occurred from inhalation or skin absorption. They found that 1·7 mgm. per cubic metre of acetanilide and 22·5 mgm. per cubic metre of ethylaniline were not toxic. They are less certain on account of the possibility of additional nitrobenzene effects, that the figures of 2·3 mgm. per cubic metre for nitroanisole and 1·9 mgm. per cubic metre for anisidine are permissible. No chronic intoxication was found in the phenacetin plant (nitrophenetole level 21·7 mgm. per cubic metre and nitrochlorbenzene combined with nitrophenetole 3·6 mgm. per cubic metre) but higher methaemoglobin values and the presence of Heinz bodies in blood of those exposed indicate that these levels might not be permissible.

In the plant producing *p*-chloraniline a figure of 60 mgm. per cubic metre was toxic but a figure of 30 mgm. per cubic metre of nitrobenzene plant was considered non-toxic. *T. O. Garland*

Apthorp, G. H., Bates, D. V., Marshall, R. & Mendel, D. **Effect of Acute Carbon Monoxide Poisoning on Work Capacity. Influence of 5% CO_2 on Rate of Recovery.** *Brit. Med. J.* 1958, Aug. 23, 476–8, 2 figs. [12 refs.]

Donald and Paton in 1955 (*Brit. Med. J.*, 1955, Feb. 5, 313) condemned the use of 5% carbon dioxide in oxygen (carbogen) in the treatment of severe carbon monoxide poisoning with respiratory depression. The arguments for and against the use of carbogen are not so clear-cut in cases of lesser severity in which respiratory depression has either not occurred or has improved after effective artificial respiration. It is obvious that the use of carbogen can be justified in such patients only if it can be shown that it significantly increases the rate at which carbon monoxide is eliminated from the body and if the rapid elimination of carbon monoxide is a factor in avoiding such sequelae as brain damage, myocardial infarction, or pneumonia. This paper reports a study of the effect of carbogen and pure oxygen on the rate of elimination of carbon monoxide in 4 acutely poisoned normal subjects. The effect of carbon monoxide on respiration, pulse rate, and the ability to carry out steady work has also been studied. Experimental methods and the results of the experiments are given in detail in the original.

During exercise on a motor-driven treadmill the 4 subjects were given pure carbon monoxide to raise their blood carbon monoxide levels to between 30% and 50% saturated. During the whole of the exercise and intake period no change occurred in respiratory rate or minute-volume breathed. Dyspnoea is not, therefore, a symptom of carbon monoxide poisoning. A rise in pulse rate occurred in all subjects when the blood became 30% saturated with carbon monoxide, and in 1 subject rose significantly before this level was reached. It is suggested that the tachycardia may be due to the direct effect of carbon monoxide on the myocardium. The ability to carry out moderate exercise was unimpaired until ataxia developed. The oxygen consumption remained unchanged. It was found that carbogen caused an increase in the rate of elimination of carbon monoxide due to the increase in minute-volume it produced. The doubling of the minute-volume caused a 30% increase in the rate of elimination of carbon monoxide. A further action of carbon dioxide, unrelated to any effect it may have on the rate of elimination of carbon monoxide from the body, is the marked increase in cerebral blood flow which follows the administration of this gas. This increased blood flow may be of benefit to patients suffering from anoxic cerebral damage.

The resuscitation of patients suffering from carbon monoxide poisoning must be based on recognition of the following principles:

(1) Immediate administration of oxygen to combat anoxia. It is important that masks should be very carefully fitted and continually supervised, since it is essential that inspired oxygen be at the highest possible concentration. BLB, or plastic masks, while adequate for most clinical situations, are not likely to be the best possible appliances for this purpose. An anaesthetic mask and apparatus with a skilled administrator should provide the necessary high oxygen concentration.

(2) Adequate ventilation to ensure that the alveolar oxygen tension is at the highest possible level. If respiration is depressed, intubation and manual ventilation might be used by an anaesthetist, or a respirator might be employed for this purpose. The administration of carbon dioxide would be indicated only if it could be observed to be producing hyperventilation.

(3) Such hyperventilation would no longer be indicated when the COHb saturation had returned to a very low level, but if severe cerebral damage has occurred the patient may still be deeply comatose and care must be taken that the level of ventilation is adequate. *P. J. R. Challen*

QUILLIGAN, J. J., Jr., BOCHE, R. D., FALK, H. L. & KOTIN, P. **The Toxicity of Ozone for Young Chicks.** *Arch. Indust. Health.* Chicago. 1958, July, v. 18, No. 1, 16–22, 7 figs. [14 refs.]

HAAGEN-SMIT (*Chemistry and Physiology of Los Angeles Smog, Indust. & Engin. Chem.*, 1952, v. 44, 1342) has shown ozone to be an element in air pollutants in Los Angeles and the authors were interested in the relation between these pollutants and respiratory infection.

Chicks hatched in an incubator and continuously exposed to concentrations of 1–4 p.p.m. of ozone died within a few days, most of them within 48 hours. Pathological findings were those due to oedema and haemorrhage of the lungs.

Difficulty was experienced in determining the LD50 for limited acute exposures. Chicks aged 1 day to 1 month were exposed to concentrations varying from 5 to 23 p.p.m. for 6-hour periods. For chicks under 1 week old the LD50 was between 5 and 10 p.p.m.; higher concentrations were sometimes tolerated by older chicks.

Further experiments were made to determine whether chicks previously exposed to non-lethal doses and then allowed to recover for 1 week developed any tolerance. This and further experiments produced no evidence that the chicks acquired tolerance to O_3 such as STOKINGER [this *Bulletin*, 1957, v. 32, 873; *ibid.*, 163] demonstrated with rats and mice. *T. O. Garland*

JEDLICKA, V., HERMANSKÁ, Z., ŠMÍDA, I. & KOUBA, A. **Paramyeloblastic Leukaemia appearing simultaneously in Two Blood Cousins after Simultaneous Contact with Gammexane (Hexachlorcyclohexane).** *Acta Med. Scandinavica.* 1958, Aug. 23, v. 161, No. 6, 447–51. [31 refs.]

Both were affected 8 months after unloading Gammexane. See this *Bulletin*, 1954, v. 29, 71; 1955, v. 30, 1040; 1956, v. 31, 1023.

ERDMANN, W. D., SAKAI, F. & SCHELER, F. Erfahrungen bei der spezifischen Behandlung einer E 605—Vergiftung mit Atropin und dem Esterasereaktivator PAM. [**Successful Treatment of E 605 [Parathion] Poisoning with Atropine and the Esterase Reactivator P.A.M.**] *Deut. med. Woch.* 1958, Aug. 8, v. 83, No. 32, 1359–62, 1384, 1 fig. [15 refs.]

PAM (2-hydroxyiminomethyl-N-methyl pyridinium iodide) has been shown by experiments on animals and *in vitro* to reactivate cholinesterase which has been blocked by alkyl phosphates. It has been used with success in Japan in the treatment of mild to moderate poisoning in workers engaged in spraying plants with the poisonous insecticide E 605 (parathion).

This paper gives a full account of success with PAM treatment in a case of very severe parathion poisoning in a young man who had swallowed about 12 ml. of a strong solution of parathion, an amount which is regarded as being between 10 and 20 times the lethal dose. Within 15 minutes of taking the poison he was admitted to hospital in an unconscious state with depressed respiration, cyanosis, muscular twitching and tonic-clonic spasms. Diagnosis of the poisoning was not delayed and within a short time 14 mgm. of atropine had been given in divided doses with good but temporary symptomatic results. Intubation of the trachea and artificial respiration became necessary. Later more atropine had to be administered. About 2 hours after admission the patient's dangerous condition was practically unchanged and he was given an intravenous injection of PAM—0·5 gm. in 50 ml.—which had been prepared in the meantime. Within 10 minutes this injection had had decisive results and the patient regained consciousness. A second injection of PAM was considered to be advisable and was given after another 2 hours. Progress was good and within a few days his physical condition appeared to be normal. Throughout the course of the poisoning investigations of the cholinesterase activity of whole blood were carried out and the results of these are described and discussed. *M. E. Delafield*

STEYN, D. G. **The Treatment of Poisoning with Alkylphosphate (Organophosphate) Insecticides.** *South African Med. J.* 1958, Sept. 6, v. 32, No. 36, 894–5. [17 refs.]

In this paper the author considers the increasing number of cases of alkylphosphate poisoning, describes the symptom-complex of these cases and reviews the literature on the mode of action of the organophosphates and of their antidotes. These organophosphates are in the main active inhibitors of cholinesterase. This inhibition which is largely irreversible is believed to be due to the phosphorylation of some vital group of the active centre of the enzyme. In the treatment of alkylphosphate poisoning atropine is only a symptomatic antidote. Much work has been done in the search for substances which would reactivate the cholinesterase. The literature on this work is reviewed and discussed at length. It has been shown that oximes are potent reactivators of red cell and rat brain cholinesterase and are generally superior to the hydroxamic acids. A considerable number of oximes and hydroxamic acids have been tested against various anticholinesterases. The best of these compounds in the present state of knowledge is pyridine-2-aldoxime methiodide (PAM) and the use of this substance in treatment is discussed [this *Bulletin*, 1958, v. 33, 768]. It would appear that the most suitable and effective treatment of organophosphate poisoning consists of:—(1) artificial respiration, (2) oxygen inhalation, (3) injections of atropine in full and repeated doses according to clinical indications, (4) administration of PAM, and (5) symptomatic treatment. *M. E. Delafield*

GORTALUM, G. M. & DIKUN, P. P. **[Determination of 3,4-Benzopyrene Content in certain Schistose Products and in the Effluents of Schistose Chemical Plants]** *Gigiena i Sanitariya.* Moscow. 1958, v. 23, No. 8, 24–7. [19 refs.] [In Russian.]

The English summary appended to the paper is as follows:—

"A number of schistose resins and other schistose products have been examined by fluorescent spectral methods. It has been determined that 3.4-benzopyrene is contained both in chamber and generator resins (although in considerably lesser amounts) 3.4-benzopyrene has been detected in the effluents of schistose chemical plants. The extraction of phenol of butyl acetate from the effluent lowers considerably the content of 3.4-benzopyrene."

See also p. 72. KARUNAKARAN, **The Kerala Food Poisoning.**

VAN KETEL, W. G., MORRIEN, J. J. & LENSTRA, H. H. Huidafwijkingen door chloorpromazine. **[Skin Lesions caused by Chlorpromazine]** *Nederl. Tijdschr. v. Geneesk.* 1958, Sept. 13, v. 102, No. 37, 1799–1804. [27 refs.]

The English summary appended to the paper is as follows:—

"A study of the literature shows that chlorpromazine (Largactil) may produce skin lesions of the cutaneous vascular type, especially in patients treated with large doses. Nursing staff handling tablets or solutions may develop an allergic contact dermatitis localized notably on the fingers and round the eyes.

"In a small hospital 7 out of 62 members of the nursing staff suffered from contact dermatitis. Five of these cases had been caused by chlorpromazine, one was probably due mainly to streptomycin and one to penicillin. The clinical symptoms, the course before and after preventive measures, the possibilities of contact with chlorpromazine, and the effect of sunlight are described. A study was made of the most suitable concentrations for testing sensitivity reactions. Cross sensitivity for chemically related preparations, notably promazine, could not be established."

MARTIN, J. H. **The Contribution to the Gene Material of the Population from the Medical Use of Ionizing Radiations.** *Med. J. Australia.* 1958, July 19, v. 2, No. 3, 79–84. [14 refs.]

Apart from man's unavoidable exposure to ionizing radiation, due to external causes such as cosmic radiation and the natural radio-activity of the earth, and that due to man's content of radio-active material (mostly potassium), the chief ionizing agent is the beam of X-rays used in diagnosis.

The author has already contributed to a quantitative study of this (*Med. J. Australia*, 1955, v. 2, 806) and the present article is an account of more extensive work which covers series of measurements on X-ray doses received by patients at 6 different hospitals. We learn that about 25% of the population above the age of 14 years is examined annually in mass miniature surveys. It is found that, by and large, the average dose received per X-ray examination is 250 *mr* and 365 *mr* for males and females, respectively. On the basis of an average of 15 examinations before the age of 30 years, this leads to a contribution to the gonads of just under 150% of the natural background.

Passing from the diagnostic to the therapeutic uses of X-rays, the author obtained data, by means of a circulated questionnaire, about the exposures of the most frequently treated sites. The doses received are expressed in *REG* units—this is the "Rontgen equivalent genetic" and is the dose received at a given age multiplied by the risk of subsequent parenthood.

From Table IX we learn that therapeutic measures account for 15% of the total unwanted medical radiation and diagnostic measures for the remaining 85%. The significance of other sources of unwanted ionization may be seen from the data given below:—

Dose of Radiation to the Gonads derived from Various Sources in 30 years

Source	Dose (Millirems)	Percentage of Total
Natural radiations	3,000	31·1
Body radiations	1,000	10·4
Occupational exposure	20	0·2
Diagnostic X-rays	4,760	49·5
Therapeutic radiations	830	8·6
Luminous watches	23	0·2

This is an important contribution to a subject of wide social interest. *S. Russ*

TANNER, J. M., WHITEHOUSE, R. H. & POWELL, J. H. **Armadillo: A Protective Clothing as a Shield from X-Radiation.** *Lancet.* 1958, Oct. 11, 779–80, 5 figs.

The authors describe a new material which seems likely to prove very useful in protecting parts of the body against unwanted X-rays, especially in diagnostic procedures.

It is a new substance, specially made to the authors' instructions; it consists of a series of lead scales each sealed in a flexible plastic envelope and imbricated so as to overlap its next-door neighbours, both above and below and from side to side, as in Roman armour. The thickness of the lead scales is usually 0·25 mm., but owing to the overlaps the average lead equivalent thickness is between 0·3 and 0·4 mm. This is enough to stop about 95% of 75 kv. radiation.

The gonad protection in the male is virtually complete if the patient wears a jockstrap, which can be done without discomfort.

The new protective clothing should be adaptable for many other uses than those described here. The ready flexibility and ease of sterilization of the material are great advantages over some of the garments at present in use. *S. Russ*

Atmospheric Pollution

GORMAN, J. **Clean Air and Smokeless Fuel. A Small-Scale Inquiry.** *Med. Officer.* 1958, Sept. 26, v. 100, No. 13, 211–12, 1 fig.

A small-scale inquiry to discover the local public reaction to a programme against atmospheric pollution was conducted in a new council estate of about 250 houses. A covering letter with a questionnaire was delivered to each tenant. The latter, which is given in detail, asked a number of questions under headings such as "*What fuel do you use for the main heating of your living rooms?*"; "*If you use ordinary coal, why do you not use a smokeless solid fuel such as 'Coalite,' coke, etc.?*". To 248 questionnaires 142 replies were received and the answers are set out and discussed. The fuel used in these 142 homes was coal only in 44 instances, coal with some other fuel—solid smokeless fuel, gas, electricity or paraffin—in 74 instances, and smokeless fuels or electricity in 24. There were 113 answers to the question on why smokeless fuels were not used and some of these were to the effect that it was too costly (74 answers), "Don't know much about smokeless fuel" (28), storage difficulties (40) and "Don't like it" (20 answers).

The inquiry is considered to have been of value in giving information which will help in propaganda and "suggests that the public are to a limited extent 'clean air' conscious but that a planned co-ordinated approach must be made to every householder if smoke control is to be accepted voluntarily as well as through legislation". *M. E. Delafield*

GORHAM, E. **Bronchitis and the Acidity of Urban Precipitation.** *Lancet.* 1958, Sept. 27, 691, 1 chart.

This short paper contains a report on the statistical work which was undertaken to investigate the possible statistical relationship between the incidence of bronchitis and atmospheric pollution. Mortality rates for bronchitis were calculated from the Registrar General's reviews for the populations of 53 County and Metropolitan boroughs over the period 1950–54. Atmospheric pollution data on monthly deposits of tar, ash, other combustible matter and sulphate and the *p*H of the precipitation were extracted from the 1955 report of the Department of Scientific and Industrial Research. The statistical method which was used is described. The author says "In this paper I report a correlation between bronchitis mortality and the acidity of urban precipitation". No correlation with the other materials in atmospheric deposit was demonstrated.

The logarithmic average of the annual urban bronchitis death rate is 82 per 100,000 persons. In areas where the *p*H of rain is below 4·0 the death rate reaches 100 but is only 60 in the urban areas with the least acid rainfall. "The rural death-rate for the same period is considerably lower even than this, at 46 annually per 100,000 of population; so acidity would not appear to be the only factor involved in the increased urban death rate, if in fact the acidity correlation is taken as truly causal". It is noted that "Even in predominantly rural areas the rainfall may be quite strongly acid". *M. E. Delafield*

Physiology as Applied to Hygiene

Lehmann, G. **Physiological Measurements as a Basis of Work Organization in Industry.** *Ergonomics.* London. 1958, Aug., v. 1, No. 4, 328–44, 14 figs.

In their physiological studies of industrial operations the author and his colleagues commonly use 3 methods. These are:—(1) an exact time-study over the whole working day, including details of accessory operations and of all rest-pauses; (2) the measurement of the energy cost of work, and (3) the measurement of pulse rate by means of the Müller pulse counter.

Examples of the use of these methods in forging shops and in a motor-car factory are given. For a man employed on heavy work an energy expenditure of 2,000 kcal. during the day's work is regarded as normal, so that over an 8-hour day the average expenditure is 4 kcal. a minute, and this should not be exceeded. The heart rate is correlated with the energy expenditure, but the numerical relation depends on the individual. The effect of heat on the pulse rate is impressive, especially if the worker is exposed to intense radiant heat. A high pulse rate with a low rate of energy expenditure indicates fatigue of some muscle groups, especially by static effort.

The examples given include instances of underloading and of overloading the worker, and the reasons and remedies are discussed. The author lays stress on the desirability of instituting suitable organized rest pauses instead of leaving it to the workers to make voluntary pauses as the result of fatigue. *T. Bedford*

Sanitation

WATER AND SWIMMING BATHS

(Including the bacteriology of water supplies)

World Health Organization. **International Standards for Drinking-Water.** 152 pp. 1958. Geneva: Palais des Nations. [Sales Agent for U.K., H.M. Stationery Office.] [20s.; $4.00; Sw. Fr. 12.–.]

The Introduction to this most important publication states that "Supplies of drinking-water should not only be safe and free from dangers to health, but should also be as aesthetically attractive as possible. Absence of turbidity, colour and disagreeable or detectable tastes and odours is important in water-supplies intended for domestic use".

This book gives the minimum standards with which water intended for domestic consumption should comply and the methods recommended for its analysis. The standards are intended primarily to apply to water as it is supplied to the general public. Although the situation varies considerably from one country to another, the recommendations made are applicable to all drinking water whatever its origin and treatment. Moreover, it is stressed that these standards and analytical methods are not necessarily final but may be revised from time to time and a list of subjects for future research is included.

The main chapters of this publication deal with bacteriological, chemical and physical, and biological requirements. Under each of these heads standards of purity are proposed and the requisite laboratory facilities prescribed; approved methods for analysis are given in detail in the appendices. Details are also given on methods for collecting and storing water samples and on the expression of results of analysis in such a manner as to make international comparison possible.

The bacteriological standards recommended are not as strict as those in use in some countries, but there are many areas where it is impossible to supply water regularly coliform-free in 100 ml. volumes. Limits are recommended for toxic substances such as cyanide and lead and for specific substances such as fluoride and nitrate which may affect health. Furthermore, limits are given for many chemical substances normally present in water but which, when in excess, might affect its potability. There are wide variations in chemical composition of water in different parts of the world and wide limits are allowable so that there is no necessity for rigid standards. Two figures are given for each characteristic:—" permissible ", that is a limit generally accepted by consumers, and " excessive ", that is an amount that would markedly impair the potability of the water.

Although much of the material on methods of chemical and bacteriological analysis can be found in " Standard Methods " [this *Bulletin*, 1955, v. 30, 732], " Approved Methods " and " Report No. 71 " [*ibid.*, 1956, v. 31, 1025], there are many pages of new material appertaining to water quality and water analysis—details of biological examination in relation to pollution, frequency of sampling in the distribution system and radio-activity in relation to drinking water. With regard to the last factor, much progress has been made since the drawing up of the Report in 1956 and its publication in 1958; in consequence there is a lack of certain information in this section, for example, the importance of potassium in relation to the radioactivity in water is not mentioned.

Only a few years ago it seemed vain to hope that anything more than purely regional agreement could be reached on standards applicable to drinking water but with a few years of study and discussion among specialists from different member countries of the World Health Organization it has been possible to put forward standards universally applicable throughout the world. This is an achievement which stands to the credit of international cooperation and this publication should be in the hands of all those dealing with large-scale examination of potable water supplies.

E. Windle Taylor

PUBLIC HEALTH LABORATORY SERVICE WATER SUB-COMMITTEE [GRAY, R. D., Chairman]. **A Comparison between MacConkey Broth and Glutamic Acid Media for the Detection of Coliform Organisms in Water.** *J. Hygiene.* 1958, Sept., v. 56, No. 3, 377–88, 1 fig.

This reports the results of an extended trial, involving 6 laboratories in different parts of Britain, and 4,421 samples of water, of a comparison of MacConkey broth with lactose and glucose glutamic acid media. Earlier findings were confirmed in that in 48 hours both glutamic acid media gave 8–10% more isolations of *Escherichia coli* I; the glucose medium also gave an increase of 6% in other coliforms but with a heavy excess of false positive results, sufficient to reduce the specificity of the test from 94 to 83%. False positive results were markedly absent with the lactose glutamic acid medium, which gave a reduction of 36% compared with MacConkey broth, but also a suppression of 35% of the other coliforms.

When results were compared after 24 hours' incubation, agreement between the three media was much closer. This revealed that growth in the lactose glutamic acid medium was a little slower than in the other two and there was no excess of false positives with the glucose medium. The majority of these appeared in the second 24 hours.

The trial revealed that MacConkey broth itself lacked perfection in performance, and it was concluded that the ultimate solution might be in some modification of glucose glutamic acid medium by which it is made slightly more inhibitory or, preferably, by which lactose glutamic acid medium can be made less inhibitory to coliform organisms.

E. Windle Taylor

THON, D. & BELING, A. Untersuchungen über die Verwendbarkeit von Nährkartonscheiben für bakteriologische Wasseruntersuchungen mittels der Membranfilter-Methode. **[Investigations on the Use of Nutrient Cardboards for the Bacteriological Examination of Water by the Membrane Filter Method]** *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 172, Nos. 3/4, 282–95, 4 coloured figs. on pl. [25 refs.]

The authors tried to improve the bacteriological examination of water by the membrane filtration method by incorporating the nutrient in disks of cardboard. The filter cardboard was soaked with nutrient media, sterilized and dried.

The paper describes the properties of these nutrient disks of cardboard and how they are used. The results of tests concerning specificity, sterility and comparison with agar nutrient media are also given.

These dried cards of nutrient medium do not deteriorate for months and are therefore especially suited for small laboratories and field trials. The experience over some years showed that nutrient cardboards used in combination with membrane filtration gave consistent and reproducible results.

E. Windle Taylor

POMA, K. Application pratique à l'analyse bactériologique de l'eau des méthodes préconisées par l'Institut Pasteur de Lille **[Practical Application of Methods of Bacteriological Analysis of Water as advocated by the Pasteur Institute, Lille]** *Arch. Belges Méd. Sociale., Hyg., Méd. du Travail et Méd. Légale.* 1957, Dec., v. 15, No. 10, 472–81.

The methods applied by Dr. BUTTIAUX at the Pasteur Institute in Lille were tried out in Antwerp at the laboratories of *l'Intercommunale des Eaux* over a period from August to December, 1956. The report gives details of media and methods, difficult to summarize, but the author sets down the following practical conclusions:—

(1) Total plate counts. A temperature of 30°C. is preferred to 20°C. and there is a gain of time in counting after 2 days' incubation instead of after 4 days. The best medium for the counts proved to be Difco glucose yeast-extract peptone agar.

(2) 37°C. plate counts. With the same medium as above best results were obtained by incubating at 37°C. for 2 days.

(3) Isolation of *Escherichia coli*. The membrane filtration method proved superior to liquid cultural methods such as Vincent's broth at 37°C. and 41°C., MacConkey broth at 37°C. and lactose broth at 37°C.

E. Windle Taylor

GOL'DFARB, D. M. & OSTROVSKAIA, Z. S. **The Detection of Typhoid Bacilli in Water using the Increase of Phage Titre Reaction.** *J. Microbiol., Epidemiol. & Immunobiol.* London. 1957, v. 28, Nos. 5/6, 636–43. [Translated from Russian.]

Experiments are described which were aimed at establishing the possibility of detecting typhoid bacilli in water by means of the increase in phage titre reaction. Using a polyvalent typhoid phage the authors found a high increase in phage titre, but the reaction lacked specificity as lysis occurred with both pathogenic and non-pathogenic bacteria of the coli-typhoid group. A phage with properties closely resembling Vi-phage was obtained averaging 3×10^9 particles per millilitre. This had a high degree of specificity and did not produce lysis except with typhoid strains containing the Vi-antigen.

Experiments were carried out to study the sensitivity of the increase of phage reaction in relation to the concentration of organisms in the water and the length of incubation time of the test mixtures. The authors claim that their method is more sensitive than bacteriological examination and that after 20–22 hours' incubation 10–20 typhoid bacilli per litre can be detected.

The simultaneous presence of coliform bacilli lowers the sensitivity of the reaction but does not abolish it.

Typical typhoid bacilli which were capable of agglutination with Vi serum and lysis by the phage could be isolated from artificially infected boiled tap water up to the 20th day. The increase in phage reaction remained positive, however, for a long time after it was possible to isolate typical typhoid bacilli from the water, that is, up to 150 days.

E. Windle Taylor

See also p. 32, MILLER & FREEDMAN, **An Epidemic of Enteritis laid to Cross-Connection.**

GEEVER, E. F., LEONE, N. C., GEISER, P. & LIEBERMAN, J. E. **Pathological Studies in Man after Prolonged Ingestion of Fluoride in Drinking Water.** *Pub. Health Rep.* Wash. 1958, Aug., v. 73, No. 8, 721–31, 10 figs.

Necropsies were carried out on a total of 37 persons who had lived for at least 10 years in Grand Rapids, Michigan (1 p.p.m. fluoride in drinking water), Colorado Springs (2·5 p.p.m.), Amarillo, Texas (2·8 p.p.m.) or Lubbock, Texas (4·0 p.p.m.). There was a control group of 33 persons who had lived in communities where the fluoride content of the drinking water was less than 0·5 p.p.m.

In most cases three bones were selected for microscopic study—the body of a lumbar vertebra, a portion of iliac crest, and the sixth rib. In addition, the lumbar intervertebral body joints were examined for possible changes in articular cartilage.

The investigations covered parosteal and marginal tissue, the periosteum, compact cortical bone, spongy medullary bone, the bone marrow, and the intervertebral lumbar body joint. The examination showed no significant differences between the group exposed to fluoride and the control group which could be related to fluoride intake. Microscopic changes in the bones and joints incidental to ageing and due to conditions not related to fluoride were observed in both series.

Robert Weaver

ZIPKIN, I., MCCLURE, F. J., LEONE, N. C. & LEE, W. A. **Fluoride Deposition in Human Bones after Prolonged Ingestion of Fluoride in Drinking Water.** *Pub. Health Rep.* Wash. 1958, Aug., v. 73, No. 8, 732–40, 1 chart. [27 refs.]

Selected bones and skeletal tissues—iliac crest, rib, vertebra, sternum, and intervertebral cartilage—obtained from 69 people who had drunk water containing 0·1 to 4·0 p.p.m. of fluoride for at least 10 years were analysed for ash and fluoride. These bones, showing no significant histological changes, contained up to 0·548% of fluoride on a dry-fat-free basis, and 1·080% of fluoride on an ash basis. The mean ash content of the iliac crest and ribs ranged from 57·4 to 61·2%, and that of the sternum and vertebra from 44·6 to 53·7%. The fluoride concentration of the intervertebral cartilage was considerably less than that of the bones.

The concentration of fluoride in the bones increased in an essentially linear fashion with an increase of fluoride in the drinking water up to 4·0 p.p.m.

Robert Weaver

MCCLURE, F. J., MCCANN, H. G. & LEONE, N. C. **Excessive Fluoride in Water and Bone Chemistry. Comparison of Two Cases.** *Pub. Health Rep.* Wash. 1958, Aug., v. 73, No. 8, 741–6. [28 refs.]

This is an account of analyses of the skeletal tissues of 2 women—1 aged 74 years, who had lived for 24 years prior to death in Washington, D.C., where the drinking water contained 0·2 p.p.m. of fluoride, and the other, aged 78 years, who died after 34 years' residence in Bartlett, Texas, where the drinking water contained 8·0 p.p.m. of fluoride.

As much as 0·653% of fluoride was present in the calvarium of the Bartlett woman, while the bone with the lowest fluoride content was the fibula with 0·512% of fluoride. In striking contrast, the highest percentage of fluoride in the non-fluoride Washington subject was 0·092 in the calvarium; the fluoride content of her other bones did not differ greatly from this figure. The foregoing figures related to dry, fat-free skeletal tissues, but similar differences were found in the fluoride content of the bone ash of both women.

The high fluoride subject showed no signs of impairment of health or well-being, no malformation of the skeletal tissues, and no malfunction generally. It seemed that the prolonged use of drinking water containing 8·0 p.p.m. of fluoride was responsible for an increase in the ash and a slight increase in the calcium content of the skeletal tissues. *Robert Weaver*

SEWAGE, TRADE WASTE AND REFUSE DISPOSAL

TSIVOGLOU, E. C., BARTSCH, A. F., RUSHING, D. E. & HOLADAY, D. A. **Effects of Uranium Ore Refinery Wastes on Receiving Waters.** *Sewage & Indust. Wastes.* Wash. 1958, Aug., v. 30, No. 8, 1012–27, 4 figs. [12 refs.]

The process of refining uranium ore involves large amounts of liquid radio-active waste, the safe disposal of which is a major problem.

Some idea of the scale of operations existing in the United States may be taken from the statement that there are now 14 operating mills, with capacities ranging from 300 to 3,000 tons of ore *per day*; the present total capacity is about 10,000 tons per day. Present planning will double this rate.

The most important and dangerous by-product of this refining is radium, which, once one of the world's most precious materials, is now allowed to run to waste. This occurs in amazing amounts judging from the present data, for based on the current average daily processing rate no less than 2,500 gms. of radium are discarded per year. This may be compared with the estimated total United States supply of 1,000 gms. of purified radium for all medical and industrial purposes.

What does not pay to be refined is run to waste and so it is with all this radium. In running to waste it gives the sanitary engineers a very big problem and the present paper is a model of its kind, giving the reader a clear view of the problem by virtue of maps, diagrams and tabular matter. It is clear that the authors are by no means satisfied with the present methods of dealing with radio-active fluid waste.

S. Russ

Food and Nutrition

GENERAL

MINISTRY OF HEALTH. DEPARTMENT OF HEALTH FOR SCOTLAND. **Clean Catering. A Handbook on Premises, Equipment and Practices for the Promotion of Hygiene in Catering Establishments.** pp. iv + 64, 13 figs. & 4 pls. 1958. London: H.M. Stationery Office. [3s. 6d.]

This handbook, which is clearly written and illustrated by a number of figures and plates, aims at giving practical advice and does not set out to interpret the law. An important paragraph in the Introduction is "The greatest single factor in maintaining cleanliness and safety is the mental attitude of those who handle food. If they have food hygiene at heart they will so conduct themselves that good habits become automatic". Well-designed premises encourage good habits.

The handbook has 3 chapters. Chapter 1 deals with the premises, their location, area, lay-out—general plan and sanitation—and constructional details such as floors, walls, ventilation, lighting, water supply and protection against rats, mice and insects. Chapter 2 is a short one on equipment and general principles in its use but does not describe items of equipment since information can be readily obtained from the trade press and the manufacturers. Chapter 3 on "Practices" is in 10 sections which cover such subjects as welfare and conduct of staff, health of staff, engagement of staff, accidents and their prevention, storage of food, preparation of food (including re-heated food and made-up dishes) and disposal of wastes.

In a final word to this useful handbook it is recommended that the advice of the public health inspector should be "freely sought" for he is "competent to give the caterer advice on problems of structure, equipment and practices and to assist in staff training schemes".

M. E. Delafield

FOODSTUFFS

Composition and Bacteriological Control

DAVIS, J. G. **The Hygienic Condition of Misused Milk Bottles after Washing.** *Med. Officer.* 1958, Sept. 26, v. 100, No. 13, 205–10, 1 fig.

This is a report on an investigation carried out to determine whether the usual procedure adopted in the milk industry for the washing of milk bottles, which is very satisfactory, can be relied on for "misused" bottles, for a "minority of people deliberately misuse milk bottles without any thought of the consequence". The term "misused bottles" means those that have been used for cement, paint, creosote, tar, oil, glue, cosmetic preparations etc., or have been left in the open for a long time, and those into which a variety of articles may have been inserted and become jammed. All returned bottles are inspected before washing and about 1% are in bad condition and are given special treatment. About 1 in every 1,000 returned bottles is so badly misused that it has to be destroyed and it is estimated that this involves the milk industry in an annual loss of £180,000.

The experiments were made in 6 dairies in different parts of England and consisted in the bacteriological examination after the ordinary washing process of numbers of various types of misused or abnormally dirty bottles. A similar number of good bottles were tested at the same time. The results of the experiments are set out in a number of tables with an account of the system adopted in good dairies for picking out misused bottles and a description of a new automatic equipment which automatically detects and rejects bottles containing foreign matter. Among the chief findings of the experiments are that if the foreign matter in the bottle is of an impervious nature normal washing will bring about an excellent result in the bacteriological tests, but when the foreign matter is pervious a high colony count is often obtained but the *coli* test is satisfactory. It is also stated that "Present legislation bears harshly on dairies but ignores the real culprit. More positive measures should be adopted to prevent the misuse of milk bottles".

M. E. Delafield

Dept. Scient. & Indust. Res. **Food Investigation. The Microbiology of Fish and Meat Curing Brines. Proceedings of the Second International Symposium on Food Microbiology held at Cambridge (U.K.) in April 1957** [Eddy, B. P. (edited by)]. pp. vi + 336, numerous figs. [Numerous refs.] 1958. London: H.M. Stationery Office. [45s.]

This is a collection of 38 papers by microbiologists from all over the world who are interested in the processes of food preservation dependent on the use of brines.

The preservation of fish, ham and beef is the subject mainly discussed but there is a wide range of topics from the microbiology of the different forms of salt used in fish curing to the biochemical oxygen demand of brines at different stages in the curing of meat in tanks.

A number of the papers are devoted to points in technique such as the best methods for observing the biochemical activities of the bacteria found in brines, some to the classification of the bacteria concerned and others again to the chemical changes occurring in the brines and their influence on the quality of the meat preserved.

A group of papers deal experimentally with the problem of the persistence of known pathogenic forms if these are added to pickling brines.

The general impression gained from this mass of experimental observation is that knowledge in this field is still rather tentative and incomplete and that the rather wide variation in findings is most probably explained by modifications of procedure adopted in different areas in respect of the ingredients of the brines used. Certain generalizations, however, appear to be justified. The chief of these is that a variety of bacteria which are definitely halophilic in habit play an important part in these food-curing processes and are probably important in restraining or eliminating bacteria likely to cause spoilage of the fish or meat to be preserved. In salt-preserved fish, for example, *Pseudomonas salinarius* occurs which, in its metabolic activities, depends on enzymes thrown out of action at low concentration of NaCl. Spoilage of fish by proteolytic cocci is noted by H. P. Dussault (pp. 13–19) and also the development of red colour under the action of red halophilic bacteria. J. Liston and J. M. Shewan (pp. 35–43) and N. Bain, W. Hodgkiss and J. M. Shewan (pp. 103–16) refer to the importance of the pseudomonads in the deterioration of fish kept on ice.

In the brines used in curing hams the presence of halophilic forms akin to achromobacter, and of vibrios, is noted. R. Buttiaux (pp. 137–48) specially emphasizes the fact that vibrios are usually present in good ham-curing brines, and that these may be isolated from the micrococci, with which they are usually in competition, by using 1 unit of penicillin/ml. of medium. H. Henry, L. Joubert, L. Renault and P. Goret (pp. 213–22) emphasize the importance, in meat-curing brines, of a vibrio which attacks carbohydrates so as to develop a *p*H about 5·6, and at the same time reduces nitrate to nitrite.

R. H. Deibel and C. F. Niven, Jr. (pp. 149–55) refer to the importance of bacteria which produce H_2O_2 (lactobacilli and tetracocci) in the up-to-date methods of ham curing in America. There is general agreement that production of acid by bacteria from the fermentable material present in the meat, and the reduction of the nitrate present to nitrite are responsible for keeping brines at a high level of oxidation-reduction (OR) potential over many weeks, but that when the glycogen etc. of the muscle have been exhausted and the nitrate and nitrite reduced to N_2, there is a fall in OR potential which favours the growth of anaerobes and leads to deterioration of the food product. The relationship of chemical change to bacterial activity, however, seems still to require much elucidation.

M. Ingram, A. G. Kitchell and G. C. Ingram (pp. 205–12) have emphasized the need to use media of very high salt content, 20% or more, in the presence of fresh meat juice if the very markedly halophilic flora of bacon-curing brines is to be demonstrated.

The survival of faecal flora, of staphylococci, of salmonellae and of clostridial spores, especially those of *Clostridium botulinum*, in meat- and fish-curing brines has been the subject of special experimental observations.

Salmonellae are observed to die rapidly in concentrated salt at 37°C. but not at 5°C. (H. L. Shipp, pp. 277–82). Spores survive and may in some circumstances germinate, but even so the toxin production by *Cl. botulinum* in the presence of high salt concentration is very limited (H. Beerens, pp. 235–45; also J. Lubertino, pp. 283–8).

J. W. McLeod

Schesser, J. H., Priddle, W. E. & Farrell, E. P. **Insecticidal Residues in Milling Fractions from Wheat treated with Methoxychlor, Malathion, and Lindane.** *J. Econom. Entom.* 1958, Aug., v. 51, No. 4, 516–18.

"Milling tests were conducted to determine the insecticide residue in flour derived from wheat to which three candidate protective treatments had been applied as dusts or sprays at several rates. Some lots were milled 9 to 10 days after treatment and others after aging 18 to 24 months. Samples analyzed were the wheat just before and after cleaning, and the flour, bran, shorts, and germ. In most cases, cleaning removed only a small amount of insecticide. The highest residues were in the bran and shorts. Very little insecticide carried over into the flour, 0 to less than 0·3 p.p.m. from malathion applied at 2·5 to 7·5 p.p.m.; 0·3 to 1·8 p.p.m. from methoxychlor applied at 5 to 50 p.p.m.; and 1·3 to 2·6 p.p.m. from lindane applied at 2.5 to 7.5 p.p.m."

SCHÖNHERR, W. Nährkartonscheiben in Kombination mit Gitternetz-Membranfiltern als Hilfsmittel bei der hygienischen Milchüberwachung. [**The Use of Membrane Filters in combination with Nutrient Cardboard Disks in the Control of Milk Hygiene**] *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 171, No. 8, 616–23, 7 figs. (4 coloured on pl.) [22 refs.]

A membrane filter "Mi 5" specially designed for filtering milk is now sold in a special plastic pack which also contains a cardboard disk impregnated with dehydrated Endo medium. Both are sterilized with ethylene oxide before packing and do not therefore require autoclaving before use. The cardboard disks are simply placed in Petri dishes containing 2·7–3 ml. of sterile water, and membrane filters through which appropriate dilutions of the milk sample have been filtered are laid on top of the disks and incubated overnight. Typical colonies as seen on Endo medium grow on the membrane and are counted with the aid of a grid ruled on the filter. The membranes are sterilized by heating at 60–70°C. in an incubator overnight and then glued on to paper as a permanent record of the sanitary quality of the given milk sample.

The author suggests that a better index of milk cleanliness than the coliform count on Endo medium might be a count of triphenyl-tetrazolium-chloride-reducing colonies on an appropriate medium containing this reagent. *B. Moore*

FROEHNER, H. Veterinärhygiene und Milch. [**Veterinary Hygiene in relation to Milk**] *Desinfektion u. Gesundheitswesen.* 1958, Aug., v. 50, No. 8, 113–20.

This is a long account with much detail of many aspects of the modern approach to the production of a milk supply which is safe and clean. As recently as 2 decades ago milk was a most unhygienic liquid. Separate sections of the paper include descriptions of the nutritive value of milk and the amounts of it which are consumed in different countries, the various breeds of cow and their milk yield, the hygiene of cow sheds, the cleansing and disinfection of cow sheds, udder hygiene, the hygiene of milking, milking machines and the general hygienic control of milk and of dairies. These sections are followed by a long description of the official and legal control of dairies and milk. Some details, with references to existing regulations, are given of the bacteriological and general medical examination of personnel before engagement and during employment, the control of the safety of the water supply used in the dairies and the supervision of the sale of milk. *M. E. Delafield*

FOOD POISONING

MCALPINE, D. & ARAKI, S. **Minamata Disease. An Unusual Neurological Disorder caused by Contaminated Fish.** *Lancet.* 1958, Sept. 20, 629–31, 1 fig.

"Minamata is a small industrial town near the south-west coast of Kyushu, the most southerly of the main Japanese islands." The chief factory makes artificial fertilizers and its effluent empties into Minamata Bay.

A mysterious nervous illness—Minamata disease—began to affect villagers near the bay at the end of 1953 and by 1956 had reached epidemic proportions. The results of investigations of the disease were published in the *Kumamoto Medical Journal* in 1957 (Suppl., January and June) (KITAMURA *et al.*).

During 1956, 15 patients (9 adults and 6 children) were admitted to the Kumamoto University Hospital for illness of acute or subacute onset in which numbness developed in the extremities, accompanied or followed by slurred speech and unsteady gait with increasing disability. Most of the patients complained of deafness and disturbance of vision. Other signs and symptoms which occurred in some patients were dysphagia, insomnia, emotional disturbance, confusion and drowsiness and stupor alternating with periods of restlessness. Cerebellar ataxia and dysarthria were always present. Choreiform or athetotic movements were observed in several adults. The most severely affected patients died, while the others remained incapacitated in varying degree. Improvement in hospital was sometimes followed by relapse on returning home. The main post-mortem findings were in the central nervous system—cell degeneration which was most marked in the granular layer of the cerebellum but was also found in the basal ganglia, hypothalamus, midbrain and cortex.

The public health department of the University reported 52 cases of the disease (17 deaths) and a morbidity rate of 19 per 1,000 in a particular group of 4 villages. All the patients frequently ate fish caught in the bay. Since November 1956, when fishing in the bay was prohibited, no fresh case of the disease has been reported. A nervous disease also occurred in animals and in 1 example it is stated that in 1953–56 out of a total of 61 domestic cats 50 had died.

The chemical investigations which were carried out showed that (1) some fish and shellfish from the bay had increased amounts of manganese, selenium and copper, (2) the silt from that part of the bay which received the factory effluent contained sulphur, mercaptan and large amounts of selenium, (3) selenium was found in human and cat livers in an amount equal to that found in cases of selenium intoxication, (4) the raw materials used in the factory contained *inter alia* thallium and selenium. These results are difficult to evaluate but the evidence so far points to the toxic action of some inorganic chemical compound in the factory effluent. *M. E. Delafield*

ARMIJO, R. **Outbreak of Food Poisoning at the School of Medicine Cafeteria traced to Guanabana Seed (Soursop Seed).** *Bol. Asoc. Med. de Puerto Rico.* 1958, May, v. 50, No. 5, 181–4.

Soon after supper at the Puerto Rico School of Medicine cafeteria some students and kitchen personnel were taken ill with symptoms of nausea, vomiting, salivation and gastric discomfort. Investigations showed that at least 11 of the 33 persons who had had supper were affected. The incubation period was short—less than 10 minutes in 5 cases, 15–45 minutes in 3 cases and 46 minutes to 2 hours in 3 cases. These symptoms subsided in less than 1 hour in 5 cases and in only 1 case did they last for as long as 8 hours. The cause of the poisoning was guanabana juice. Of 12 persons who had drunk the juice 11 became ill whereas of 22 persons who had no symptoms only 1 had taken it.

Some evidence is presented that the chemical poison in the guanabana juice (bacteriological investigations were negative) is derived from the seeds and not from the flesh of the fruit. In the present outbreak it was found that the juice had been prepared in the kitchen by crushing the flesh and the seeds of the fresh guanabana in a machine. The toxic chemical principle in guanabana has not as yet been isolated.

M. E. Delafield

EHRENKRANZ, N. J., TAKOS, M. J., HOFFERT, W. R. & RIEMER, Florence. **An Epidemic of *Shigella sonnei* Dysentery arising in a General Hospital.** *New England J. of Med.* 1958, Aug. 21, v. 259, No. 8, 375–7, 1 fig. [13 refs.]

Between July 9th and the 14th 1957 an explosive outbreak of gastro-enteritis occurred at the Jackson Memorial Hospital of Miami, Florida. The total number of persons affected was 78 and of these only 11 were patients; the remainder were hospital staff. The illness started gradually with headache and malaise followed in 8–12 hours by abdominal cramps and blood-streaked diarrhoea. On the average the course of the illness was about 2½ days of fever and about 4 days of intestinal disturbance. Bacteriological investigation of stools and rectal swabs demonstrated the presence of *Shigella sonnei* in 37 of 74 of the patients who were examined. The organism was resistant to sulphonamides but sensitive to tetracycline and neomycin. Treatment was at first symptomatic but later when the symptoms were waning 0·5 gm. of neomycin was given by mouth twice daily for 5 days.

The epidemiological investigation, which is described in some detail, provided evidence that the vehicle of the organism was turkey salad provided at a hospital cafeteria for employees. Examination of food handlers in the hospital revealed that 2 of the 11 employed in the cafeteria were carriers of *Shigella sonnei* and 1 of these carriers was responsible for slicing the turkey and mixing the salad. *Salmonella oranienburg* was also isolated from 1 of these 2 carriers as well as from 3 other food handlers whose stool cultures were negative for shigellae. *M. E. Delafield*

KARUNAKARAN, C. O. **The Kerala Food Poisoning.** *J. Indian Med. Ass.* 1958, Sept. 1, v. 31, No. 5, 204–7. [11 refs.]

In this article a detailed account is given of the widespread occurrence of E605 [parathion] poisoning in Kerala in Southern India in April and May 1958 which caused "more deaths from E605 than the total number killed by it in the U.S.A. and Great Britain during the ten years, it had been in use". The outbreak created a panic because during April and May, 828 cases of poisoning with 106 deaths were reported, and out of these, 360 cases with 102 deaths were definitely proved to have been caused by the poison; 40 cases with 4 deaths were suspected of being cases of poisoning but the rest were not genuine cases. In all proved cases the patients had consumed food containing flour or sugar contaminated with Folidol, the trade name of the Bayer product of E605 which is marketed as an insecticide under a variety of names.

The first incident, which is dramatically described, occurred in a small village where 10 died 3–4 hours after eating bread and biscuits. These sudden deaths caused terror in the people who "readily believed the local Ayurvedic and Homoeopathic practitioners' theory that death was due to radio-activity" and accordingly were afraid to touch the bodies of the dead and remained at home with closed doors to protect themselves from radio-active winds. There is an account of the outbreaks in other places of the area. At first some of the cases were thought to be strychnine or DDT poisoning, but ultimately the typical clinical picture of organic phosphorus compound poisoning led to the correct diagnosis. The clinical and post-mortem findings, laboratory investigations and animal tests are described.

Folidol, the use of which as an insecticide has increased enormously in the last few years, was first imported into India from Germany in original packings. In 1957 it came in bulk to Bombay where it was diluted and distributed in large polythene carboys manufactured locally. A consignment of 55 carboys arrived in Cochin in April 1958 when 15 of them were found to be defective and 6 had leaked, spilling 12 gallons of Folidol over large consignments of food in the same hold. The spillage was noted on arrival but was not reported to the health authorities. The carboys and the deal boxes which contained them, though clearly marked "Poison", had been declared "harmless chemical" in the shipping documents.

M. E. Delafield

BERNSTEIN, A. **A New Phage Type of *Salmonella paratyphi B* which was responsible for an Outbreak of Food Poisoning.** *Monthly Bull. Ministry of Health & Pub. Health Lab. Service (directed by Med. Res. Council).* 1958, Apr., v. 18, 92–6. [11 refs.]

From a large outbreak of food poisoning in and around Worksop, Nottinghamshire, which began in

August 1955 [this *Bulletin*, 1957, v. 32, 16, 127], a total of 161 strains of *Salmonella paratyphi B* were examined. They could not be typed by means of the typing phages then in use. Propagation of typing phage 3b on one of the epidemic strains yielded a phenotypic modification of this phage by means of which 153 of the 161 cultures could be shown to be of one type. This has been designated phage type Worksop.

The remaining 8 strains were epidemiologically part of the outbreak and carried a temperature phage which had the property of modifying the typical Worksop strains so that their reaction patterns became indistinguishable from these of strains of the smaller group. This suggests that all of the strains had a common origin.

Phage type Worksop has since been isolated in 2 small outbreaks of infection in each of which a pork product was the suspected vehicle of infection, and it has also been recovered from animal feeding stuffs.

J. Nagington

Bacteriology and Immunity

Abstracts of papers relating to the bacteriology of plague, cholera, yaws, leprosy and certain other tropical bacterial diseases; of the rickettsial fevers; and of yellow fever, dengue, rabies and certain other tropical virus infections, are published in the TROPICAL DISEASES BULLETIN. *Their titles and page references are cited below in the appropriate sub-division of this section*

GENERAL

MEYNELL, G. G. **Inherently Low Precision of Infectivity Titrations using a Quantal Response.** *Biometrics.* 1957, June, v. 13, No. 2, 149–63. [Numerous refs.]

This paper presents a comprehensive review of the nature of the dose-response curve in experiments in which various doses of infective (*i.e.* self-reproducing) particles are inoculated into host organisms. The evidence suggests that, almost universally, particles act independently after inoculation. If the host organisms are either completely susceptible, or are partially but equally susceptible (*i.e.* can be successfully infected by the same proportion of particles), the proportion of non-infected hosts is related exponentially to the dilution of the particles, this proportion being the first term of the Poisson series. Variability in the susceptibility of the hosts will lead to a response-curve which (when plotted with the proportion infected against the logarithm of the dilution) is less steep than the exponential. Since the precision of the titration depends on the steepness of this curve it follows that there is an upper limit to the precision which can possibly be obtained by infectivity titrations with a given number of observations.

The author's tabulations show that this precision is considerably less than is often achieved in pharmacological titrations, for which the model is inappropriate.

P. Armitage

CHANG, S. L., BERG, G., BUSCH, K. A., STEVENSON, R. E., CLARKE, N. A. & KABLER, P. W. **Application of the " Most Probable Number " Method for Estimating Concentrations of Animal Viruses by the Tissue Culture Technique.** *Virology.* New York. 1958, Aug., v. 6, No. 1, 27–42, 1 fig. [33 refs.]

Dilutions of a suspension of the Connecticut 5 strain of Coxsackie B1 virus were inoculated into tubes containing trypsinized cell cultures of rhesus monkey tissue. The tubes were incubated at 35°C. and examined for a period of at least 10 days for cytopathic changes. The results were consistent with an exponential relationship between the proportion of positive tubes and the dilution, which would suggest that there is no detectable heterogeneity in the susceptibility of replicate cell cultures. The number of " cytopathogenic units " per ml. can therefore be estimated by well-known " most probable number " techniques, and the authors supply a table giving the maximum likelihood estimate for various possible results, when five aliquots are used at each of three 4-fold dilutions. For other situations the authors recommend an approximate formula due to H. A. THOMAS.

[The authors' reference to the paper by Meynell (reviewed above) is misleading. He was concerned to show that the exponential relationship provided an *upper bound* to the precision to be expected from dilution series, rather than that this upper bound would usually be attained. The rationale of the approximate formula is obscure, and it would have been useful to have had more details.]

P. Armitage

STEVENS, W. L. **Dilution Series: a Statistical Test of Technique.** *J. Roy. Statistical Soc.* Ser. B. 1958, v. 20, No. 1, 205–14.

In the estimation of bacterial populations by the dilution (or " most probable number ") method, errors of technique tend to produce a flatter dose-response curve than the exponential curve which is theoretically expected. As a test for this effect the author proposes the use of the " range " defined as the number of levels, counted inclusively, from the first where not all plates or tubes are positive, to the last where not all are negative. The distribution of the range is found, and tabulated for series with 1 or 2 tubes at each of a number of 2-fold dilutions, 1 to 4 tubes at 4-fold dilutions, and 1 to 8 tubes at 10-fold dilutions. [This test is the same as that proposed by Moran in the paper reviewed below.] *P. Armitage*

Moran, P. A. P. **Another Test for Heterogeneity of Host Resistance in Dilution Assays.** *J. Hygiene.* 1958, Sept., v. 56, No. 3, 319–22.

In infectivity titrations, heterogeneity of the susceptibility of the host organisms tends to flatten the response curve below the theoretical exponential curve [see the paper by Meynell reviewed above]. The author proposes a test for this tendency, based on the number of levels, D, between the first level at which at least 1 host is uninfected, and the last level at which at least 1 is infected. The probability distribution is tabulated for two-fold series, with 4, 5, 8 or 10 host organisms at each dilution. [Moran's test is exactly the same test as that given by Stevens in the paper reviewed above, but Moran does not count inclusively, so his D is 1 less than Stevens's " range ". Fortunately, the particular cases for which the two authors present tabulations are different, and the two papers are therefore complementary.] *P. Armitage*

Mackeprang, B. & Bentzon, M. W. **Method for Determining the Number of Viable Bacteria in Suspensions of Mycobacteria grown in Dubos Fluid Medium with Tween.** *Acta Tuberculosea Scandinavica.* 1958, v. 35, Nos. 3/4, 258–64, 1 fig.

Suspensions of mycobacteria grown in Dubos fluid medium with Tween contain large units, most of which break up when exposed to ultrasonics. The treatment causes an apparently exponential fall in the viable count, so the initial number of viable bacteria can be estimated if counts are available at 2 different times after the start of ultrasonic treatment. However, the counts that can be made are of the number of viable units, U, which is less than the number of viable bacteria. By examination of smears it is possible to determine the distribution of the total number of bacteria per unit, with a mean $\bar{n}_b$. It is claimed that this is of the Polya (or negative binomial) type, which enables the authors to derive a correction factor, *f*, from which the viable count may be calculated as $U\bar{n}_b f$. A table shows *f* (which is between 0 and 1) in terms of the proportion of surviving bacteria and $\bar{n}_b$. The authors say that usually *f* will lie between 0·9 and 1, and suggest that the correction may be ignored. [On p. 260, line 13, for $p/100$ read $1/\bar{n}_b$; on line 14, the formula for C should be Σu_n; and on line 17, for 260 read 262.] *P. Armitage*

Hess, E. L. & Lagg, S. E. **Some Physical Aspects of the Bacterial Cell.** *Science.* 1958, Aug. 15, v. 128, 356–8, 2 figs. [18 refs.]

Using such physical data as dry weight, wet weight and moisture determinations of whole cells and of isolated cell fractions, the authors calculate that water accounts for approximately 60% of the total weight of the wall of a typical coccus such as *Staphylococcus aureus.* In the case of *Bacillus megaterium* it is shown that approximately 10 gm. of water must be present for each gm. of solids in the cell wall.

The authors picture the bacterial cell wall as a fenestrated, three-dimensional network of solid material the spaces in which are filled with water. Such a structure would confer on the wall its observed rigidity and is consistent with permeability and electron diffraction data.

Similar calculations suggest that a large proportion of the protoplasmic constituents must be present in an undissolved form and a concept of the bacterial cell as a rigid, water-filled mesh enclosing a heavy suspension of particulate matter is presented. Such a concept is not new but it has not previously been arrived at by this type of analytical reasoning. *John R. Norris*

Barile, M. F., Yaguchi, R. & Eveland, W. C. **A Simplified Medium for the Cultivation of Pleuropneumonia-Like Organisms and the L-Forms of Bacteria.** *Amer. J. Clin. Path.* 1958, Aug., v. 30, No. 2, 171–6, 6 figs. [17 refs.]

The medium for pleuropneumonia-like organisms (PPLO) consisted of Bacto-brain-heart infusion, 37 gm.; yeast extract, 2 gm.; agar, 13 gm.; distilled water, 850 ml. This mixture was heated, the *p*H adjusted with N-NaOH to *p*H 8·2, autoclaved at 15 lb. for 15 minutes, cooled to 50°C., and 150 ml. human blood added. 30–35 ml. was poured into each Petri dish and the plates were stored at room temperature until used. Freshly poured plates were used whenever possible but the medium was usable up to 5 days.

Two plates were inoculated with each specimen, one was cultured aerobically, the other anaerobically, with or without CO_2. Plates were examined after 48 hours and up to 10 days, and PPLO colonies were identified by (i) their small size, (ii) their growth pattern, and (iii) positive reaction to methylene blue azure [Dienes, *Proc. Soc Exper. Biol. & Med.*, 1947, v. 64, 165; this *Bulletin*, 1947, v. 22, (482)]. 199 PPLO strains were isolated, mainly from the urethra or cervix of people with non-gonococcal infections. In addition 5 L-forms were isolated.

PPLO could be maintained by (i) freeze-drying, (ii) subculture at intervals of 3–5 days, (iii) storage of cultures at −20° or −70°C. *S. T. Cowan*

Payne, W. J. **Studies on Bacterial Utilization of Uronic Acids. III. Induction of Oxidative Enzymes in a Marine Isolate.** *J. Bacteriology.* 1958, Sept., v. 76, No. 3, 301–7, 7 figs.

Anderson, R. F. & Jackson, R. W. **Essential Amino Acids in Microbial Proteins.** *Applied Microbiol.* Baltimore. 1958, Sept., v. 6, No. 5, 369–73. [35 refs.]

SCHABINSKI, G. & URBACH, H. Ein Beitrag zur Verhütung der Spritzeninfektion bei Massenimpfungen. **[A Contribution to the Prevention of Syringe Contamination during Mass Inoculations]** *Ztschr. f. ärztl. Fortbildung.* 1958, Sept. 1, v. 52, Nos. 17/18, 783–7, 6 figs.

It is recognized that during mass inoculations merely to change the needle between injections is not an adequate safeguard against the transmission of hepatitis virus, because when the used needle is removed, the vacuum created in the socket causes the aspiration of fluid from the tip of the needle with the result of contaminating the syringe itself. Various mechanical devices (illustrated here), some of them complex and involving traps and junction pieces, have been introduced to obviate this risk.

The authors of this paper propose a much simpler solution: the used needle is merely thrust into a block of rubber before detachment from the syringe. It might be supposed that this would occlude the point and thus prevent aspiration altogether, but for some unexplained reason porous rubber was used [the size of the cavities in this material is not stated], and the aspiration of air was thus not completely prevented. Further safeguards found to be necessary were to immerse the block of rubber "in water or a disinfectant solution" in a photographic developing dish and to express a drop of fluid from the syringe which should be hanging from the tip of the needle when it was inserted into rubber.

Proof of the efficacy of this proceeding was obtained by making a series of injections into nutrient agar whose surface was bathed in a thick suspension of *Chromobacterium prodigiosum*: after every 5 such injections 0·5 ml. saline was sucked into the syringe through the nozzle and cultivated. With the full technique these cultures were sterile after 1000 injections: when the needle was merely inserted into dry rubber they became positive after 30.

L. P. Garrod

BOURGAIN, M., BONNEL, P. H. & RABY, C. Les Pseudomonadaceae, agents de souillure fréquents des produits biologiques d'origine sanguine. **[The Pseudomonadaceae Family, Frequent Source of Bacterial Contamination in Stored Blood and Blood Derivatives]** *Ann. Inst. Pasteur.* 1958, Sept., v. 95, No. 3, 361–3.

The obtaining and storage of human blood and its products is subject to strict bacteriological control, yet nevertheless contamination occasionally occurs. The common contaminating organisms are various bacilli, cocci and fungi, but their numbers are reinforced by a flora which, though not new to the bacteriologist, is of great interest on account of its widespread diffusion. These organisms consist of non-sporing bacilli, polymorphic, Gram-negative, aerobic, motile or non-motile, easily cultured at room temperature and even often at refrigerator temperature. They may be achromatic or possess a soluble pigment which diffuses through the culture medium or it may be insoluble, staining only the bacterial cell wall. This large family has been known for a long time as that of the "chromogenic saprophytes" or Pseudomonadaceae. BRISOU (*Ann. Inst. Pasteur.*, 1957, v. 93, 397) proposed to divide them into Pseudomonadeae, Kluyver & Van Niel; Achromobactereae, Magrou & Prévot; Chromobactereae, Magrou & Prévot.

In 2,310 cultures for sterility tests 156 strains of organisms were isolated, 48 of which belonged to the family Pseudomonadaceae. Of these 68% were chromogenic, producing yellow or green pigment. The green pigment was more frequent; it was soluble in water and occasionally fluorescent. These were diagnosed as Pseudomonadaceae genus *Pseudomonas*.

The strains producing yellow pigment belonged to the Chromobactereae genus *Flavobacterium* and *Xanthomonas*. Achromogenic strains were less numerous. They belonged to the Achromobactereae, genus *Achromobacter*. Some of them reduced nitrates and appeared to be *Achromobacter agile*; others appeared to be *Achromobacter alcaligenes* (syn. *Alcaligenes faecalis*).

An important observation was that several strains failed to grow at 37°C., preferring temperatures of 4°C. to 25°C.

These various organisms are encountered in air, soil and water and up to the present have been considered saprophytes, semi-saprophytes or pathogenic only to plants. Since the advent of antibiotics they have been noted in various human infections and must be considered pathogenic to man.

It is thus important in control tests for sterility to set up cultures at various temperatures and more particularly at or below 20°C., for a sufficient period to permit growth of such organisms which may present a latent period, longer or shorter in an unfavourable temperature or in the presence of antiseptics or antibiotics.

P. A. Clearkin

BACTERIOSTATIC AND BACTERICIDAL SUBSTANCES; DISINFECTION

In this section the abstracts are arranged as far as possible in the following order: General; Antibiotics; Other Therapeutic Substances; Disinfection.

TAYLOR, C. E. D., HEIMER, G. V. & SPICER, C. C. **A Critical Assessment of the Freeze-Dried Disc Technique for Determining the Sensitivity of Bacteria to Sulphonamides and Antibiotics.** *J. Clin. Path.* 1958, Sept., v. 11, No. 5, 421–5, 1 fig.

In performing sensitivity tests, these authors at the Central Public Health Laboratory, Colindale, London, use 5 mm. coloured blotting paper disks impregnated with a 0·02 ml. drop of antibiotic solution, rapidly freeze-dried and thereafter kept in a desiccator at 4°C. The content of the disks is penicillin 2 units, chlor- and oxytetracycline and erythromycin 10 μgm., streptomycin and chloramphenicol 40 μgm., and sulphathiazole 60 μgm. The medium is nutrient agar containing 5% lysed horse blood; uniform depth is assured. The inoculum is "standardized to give discrete colonies" [but nothing is said about how it is spread: uniform distribution of colonies is vital]. Well-separated disks are firmly applied to the inoculated medium and inhibition zones are measured after 18 hours' incubation. With a standard strain of *Staphylococcus aureus* a series of tests was made to determine the degree of variability in results which might be due to differences between batches of medium, between Petri dishes, to variations in behaviour of the test organism, and to observer error. These studies showed the results to be remarkably consistent. It was also shown that the loss of activity in disks stored for between 25 and 44 weeks was insignificant.

The authors then discuss the relationship of inhibition zone diameter to sensitivity, and present in a composite graph plotting the square of this diameter against log. antibiotic concentration the results of some tests with 6 antibiotics and the same staphylococcus. No description of these tests is given in the text, and there is no indication of the range of concentrations used. Thence they deduce the differences in zone diameter resulting from 2-, 5- and 10-fold greater resistance to each antibiotic: the difference produced by 2-fold greater resistance is within the limits of error of the test, but 5-fold can be detected. It is suggested that organisms found to be 5- to 10-fold more resistant than the standard sensitive strain should be reported as "partially sensitive" and those more than 10-fold as "resistant". [Whether this method of interpretation is applicable to the commonest form of antibiotic resistance, that to penicillin in a penicillinase-forming staphylococcus, is not discussed.] *L. P. Garrod*

MELNYKOVYCH, G. & JOHANSSON, K. R. **Effects of Antibiotics on Synthesis of Lysine Decarboxylase in** *Escherichia coli*. *Proc. Soc. Exper. Biol. & Med.* 1958, June, v. 98, No. 2, 323–7. [25 refs.]

As measured by evolution of CO_2 from lysine, the formation of lysine decarboxylase by *Escherichia coli* during growth was reduced by the presence of very low concentrations (*e.g.* 0·04 μgm./ml.) of chlor- or oxytetracycline. Higher concentrations (1 and 10 μgm./ml.) had a more pronounced effect in inhibiting induction of this enzyme in resting cells. Chloramphenicol had a similar effect: penicillin and streptomycin had none, and bacitracin and neomycin had an opposite (enhancing) effect. [The 5 last-named antibiotics were all added in concentrations of 1, 10 or 100 "units" per ml. If this strain of *E. coli* was normally sensitive to neomycin, and the "unit" is 1 μgm., it is highly unexpected that any metabolic activity should be stimulated by such concentrations.] *L. P. Garrod*

RAMSEY, H. H. **Protein Synthesis as a Basis for Chloramphenicol-Resistance in** *Staphylococcus aureus*. [Correspondence] *Nature*. 1958, Aug. 30, v. 182, 602–3. [11 refs.]

Chloramphenicol in a concentration of 10 μgm. per ml. markedly inhibited formation of the two inducible enzymes, nitrate reductase and β-galactosidase, by a chloramphenicol-sensitive strain of *Staphylococcus aureus* but not by a chloramphenicol-resistant strain. Experiments with sonically-disrupted suspensions gave similar results, suggesting that permeability was not the main source of resistance. Resistance appeared to be a stable characteristic, not dependent upon the presence of antibiotic. Cells pre-incubated in the presence of chloramphenicol and inducers (nitrate and galactose), then washed and resuspended in medium containing inducers, did not form enzyme faster than cells which were not pre-incubated. These results are taken as supporting the view that chloramphenicol inhibits by interfering with normal ribonucleic acid function, ribonucleic acid formed in the presence of chloramphenicol not being available for subsequent protein synthesis.
R. S. F. Hennessey

LACHMAN, S. J. **Anaphylactic Reaction to Oral Chlortetracycline.** *Med. Proc. Johannesburg.* 1958, Aug. 23, v. 4, No. 17, 578–80.

"An exceptionally rare case is reported of anaphylactic reaction to oral chlortetracycline (Aureomycin) capsules. Symptoms commenced 15 to 20 minutes after swallowing the first dose of 2 capsules (500 mg.) in a patient with rickettsial tick-bite fever.

"Prompt diphenhydramine (Benadryl) intravenously and corticotrophin gel intramuscularly relieved the acute signs but the allergic reaction persisted for several hours thereafter. There was no history of allergy to any other drugs including the tetracyclines. It is possible that he may have been sensitized by a course of Aureomycin 4½ years before."

[See this *Bulletin*, 1951, v. 26, 1020.]

HORVÁTH, I., MAGYAR, K., GADÓ, I., SZÁNTÓ, J. & VADKERTY, T. **The Influence of Iron upon Oxytetracycline Production by** *Streptomyces rimosus*. *Acta Microbiologica*. Budapest. 1958, v. 5, No. 3, 253–60, 3 figs.

FELDER, J. Sigmamycin in der Pädiatrie. [**Sigmamycin in Paediatrics**] *Schweiz. med. Woch.* 1958, Sept. 27, v. 88, No. 39, 953–8, 3 figs. [30 refs.]

The English summary appended to the paper is as follows:—

"Excellent results have been obtained with Sigmamycin in 110 children suffering from septicemia, purulent meningitis, infections of the respiratory tract, osteomyelitis, arthritis, enteritis, infections of the urinary tract, purulent skin diseases and suppurative lymphadenitis. In 6 cases only the results were negative. We observed prompt therapeutic effect and good tolerance, as previously found by other authors. The side-effects were always harmless. All tested staphylococcic strains were initially sensitive to Sigmamycin. Its rapid and reliable action, the possibility of both intravenous and local administration, as well as the fact that it is well tolerated have made Sigmamycin one of the most useful therapeutic agents in our clinic against serious bacterial infections of every etiology. In very acute cases, especially in septicemia, purulent meningitis, arthritis, osteomyelitis and complicated pneumonia we recommend a high initial dosage orally of 100–200 mg per kg body weight daily, intravenously of 50 mg per kg daily."

GUILLOT, N. Élaboration par *Lactobacillus acidophilus* d'un produit actif contre *Candida albicans*. [**Production by** *Lactobacillus acidophilus* **of a Substance active against** *Candida albicans*] *Ann. Inst. Pasteur.* 1958, Aug., v. 95, No. 2, 194–207, 1 diagram & 4 figs. [18 refs.]

A strain of *Lactobacillus acidophilus* was grown for one day in a medium consisting of a casein digest and Evian water, having a *p*H of 6·0: it had then attained about one-third of maximum growth. This was filtered and inoculated with a strain of *Candida albicans*: growth was invisible until the third day and attained only a small fraction of normal density by the 7th. On the other hand, when the filtrate was autoclaved or adsorbed with activated charcoal it supported growth of *C. albicans* almost as well as fresh medium. It appears therefore that *L. acidophilus* forms a substance inimical to the growth of *C. albicans*, and in the author's view this may be a restraining influence in the alimentary tract which is lost during antibiotic treatment. *L. P. Garrod*

HASEGAWA, S., TANABE, S., SHIOZAWA, F. & NAKAGAKI, H. **Screening Tests for Antibiotic Action of Plant Extracts.** *Japanese J. Exper. Med.* 1958, June, v. 28, No. 3, 139–58.

"With a view of researching the antibiotic action of plant substances, our prime objective, we roamed over hill and dale of the Central Japan for the past ten years, and we have had a large collection of plants. Then we made tests to determine the extent of the antibiotic action of them.

"In this paper listed are the names of the plants which act upon Staphylococcus aureus, Escherichia coli, Mycobacterium tuberculosis avian type and human type."

[Over 3,000 plants were tested and 575 were active.]

HASEGAWA, S., TANABE, S., SHIOZAWA, F. & NAKAGAKI, H. Études sur l'action antibiotique des plantes du Japon. [**Studies on the Antibiotic Action of Japanese Plants**] *C. R. Soc. Biol.* 1958, v. 52, No. 2, 391–2.

KNOX, Charlotte H., ROBBINS, Mary L. & SMITH, P. K. **Influence of Pyrimidine Analogs and Related Compounds on the Propagation of Poliomyelitis Virus in Tissue Culture.** *J. Pharmacol. & Exper. Therap.* 1957, Apr., v. 119, No. 4, 495–505, 2 figs. [25 refs.]

This is a condensed account of a study of the action of 163 compounds on the growth of poliomyelitis virus in tissue cultures of monkey testis and kidney. 43 were found to have some action, and 8 were chosen for further study in experiments with all 3 types of virus (type 1 was the more resistant, but only in testicular cultures, to some of the compounds), experiments in which the time of addition of the compound was varied (more effect was obtained when inoculation with the virus preceded the addition of the compound), quantitative studies of delayed and diminished virus multiplication, and some observations on the action of certain antagonists. The 8 compounds were n-butyl-ethyl-barbituric acid, 4,6-diamino-5-nitro-2-thio-pyrimidine, hypoxanthine, 1-methyl-butyl-ethyl-barbituric acid, 5-methyl-thiouracil, 2,4,5,6-tetramino-pyrimidine, thiouracil, and 2-thio-4-phenyl-6-oxy-pyrimidine. Their minimum inhibitory concentrations for the 3 types of virus in the 2 kinds of cultures varied from 0·03 to 4·0 mgm./ml. *L. P. Garrod*

INDIVIDUAL BACTERIA

In this section the abstracts are arranged as far as possible in the following order: General; Enteric Organisms; Corynebacterium, Mycobacterium; Staphylococcus, Streptococcus; Brucella; Haemophilus; Pasteurella; Pseudomonas; Neisseria; Donovania; Spirochaetes, Leptospira; Anaerobes; Bacillus; Others.

VAN OYE, E. Les Salmonellae du Congo Belge (Sixième Rapport). [**The Salmonellae of the Belgian Congo: Sixth Report**] *Ann. Soc. Belge de Méd. Trop.* 1958, Apr. 30, v. 38, No. 2, 225–30. [15 refs.]

The English summary appended to the paper is as follows:—

"The author advises of the new data which were gathered during 1957. Five serological types have been added to the 133 already mentioned previously; amongst them two are new to science namely S. businga (6,7: z: e,n,z_{15}) and S. kintambo (13,23: g,m,t: –).

"A list is given of all the Salmonellae isolated from poultry (ducks, chickens, pigeons, turkeys) and their importance for the epidemiology of salmonellosis is emphasized."

GANGULI, S. *Salmonella* **Serotypes in India.** *Indian J. Med. Res.* 1958, Sept., v. 46, No. 5, 637–42. [25 refs.]

HEMMES, G. D. Salmonellosis Newport overgabracht door schildpadden. [**Transmission of Salm. Newport by Tortoises**] *Nederl. Tijdschr. v. Geneesk.* 1958, Sept. 27, v. 102, No. 39, 1906–7. [10 refs.]

The English summary appended to the paper is as follows:—

"Two girls, nearly one year old, suffering from salmonellosis newport, were infected by their tortoises (*Testudo graeca*). *S. newport* was cultivated from stools of the children and the animals."

HOWARTH, Sheila. **Suppressor Mutations in some Cystine-Requiring Mutants of** *Salmonella typhimurium*. *Genetics.* 1958, May, v. 43, No. 404–18, 3 figs. [20 refs.]

SAPIRO-HIRSCH, R., ALTMANN, G. & HIRSCH, W. **A New** *Salmonella* **Type: Salmonella Negev.** *Acta Med. Orientalia.* 1957, Nov.–Dec., v. 16, Nos. 11/12, 274.

" A new Salmonella type, S. negev, isolated from the faeces of an infant suffering from gastroenteritis, is described. The antigen formula is 41 : z_{10} : 1,2."

MILES, A. A. **The Toxicity of Intracutaneous T.A.B. Vaccine.** *J. Roy. Army Med. Corps.* 1958, Apr., v. 104, No. 2, 89–93, 3 figs.

It might be possible to perform TAB inoculations by intracutaneous injection by the use of more concentrated suspensions than are normally used, provided that the concentration of material deposited at the site of the needle point is insufficient to cause necrosis.

Constant dose titrations of TAB bacteria suspended in graded volumes of saline were performed in the skin of guineapigs as a model for human skin. The minimal necrotizing dose was found to be between 1,000 × 10^6 and 2,000 × 10^6 bacteria. A dose of 1,000 × 10^6 was subnecrotizing, even when given in a volume of 0·05 ml., *i.e.* in a concentration of 20,000 × 10^6 per ml.

It is considered that providing the dose of TAB is about half that which induces necrosis it can be as safely injected in a volume of 0·05 ml. as in 0·5 ml. or more.

J. Nagington

DONALD, W. D., WINKLER, C. H. & HARE, K. **Investigations on the Mechanism of the Leukopenic Response to** *Shigella* **Endotoxin.** *J. Clin. Investigation.* 1958, Aug., v. 37, No. 8, 1100–105, 1 fig. [16 refs.]

This work explores the hypothesis that the well-known leucopenia following administration of Gram-negative endotoxins might be the result of a direct toxic effect on the adrenals or the central nervous system.

Normal dogs with or without anaesthesia developed marked leucopenia and haemorrhagic intestinal lesions after intravenous injections of crude toxic filtrates of *Shigella flexneri* and *Shigella dysenteriae*. Adrenalectomy did not affect the susceptibility to these toxic effects. In cerebral cross-circulation experiments in paired dogs, so designed that each animal received its entire blood supply from its partner [this *Bulletin,* 1953, v. 28, 59], injection of endotoxin into either animal produced identical gut lesions and leucopenia in both. However, this conclusion is of little significance since radio-isotope-labelled albumin studies showed that complete separation of the circulations had not been achieved. In decapitated dogs endotoxin again produced leucopenia and gut lesions indistinguishable from the responses of normal animals. The authors conclude that there is no participation of the brain as an essential site of action in the leucopenic response to endotoxin.

Derek Hobson

ŚLOPEK, S., METZGER, M., OBST, Bronisława & RUDNICKA, Irena. Serologiczne warianty typu 1, 2, 3 i 4 *S. flexneri.* [**Serological Varieties of** *Sh. flexneri* **Types 1, 2, 3 and 4**] *Archiwum Immunol. i Terapii Dośw.* Warsaw. 1957, v. 5, 59–76. [23 refs.] English summary.

An analysis has been made of antigenic structure among 6,446 strains of *Shigella flexneri* belonging to types 1–4, with antisera to the group antigens 3 and 4, 6, 7 and 8, prepared by absorption. Of 533 type 1 strains 16% contained antigens 3 and 4, 58·1% also contained 6 and 15% contained all 5 antigens; 8·4% contained only antigen 6 and 2·4% did not react with the antisera. Of 4,927 type 2 strains 82·5% contained antigens 3 and 4 only (subtype 2a), 17·2% contained 7 and 8 (subtype 2b) and 0·2% contained group antigens 3, 4, 7 and 8. Of 510 type 3 strains 84·6% contained group antigens 6, 7 and 8, 7·6% contained 3, 4, 6, 7 and 8, 3·4% contained 3, 4 and 6 and 4·3% contained only 6. Of 476 type 4 strains 91·4% contained group antigens 3 and 4 (subtype 4a), 0·8% contained 3, 4 and 6, and 7·7% contained none of the antigens investigated. Some antigenic variation in the direction of loss of type or group antigens was observed in individual colonies isolated from strains kept in egg medium at 5°C. for 12 months.

D. J. Bauer

METZGER, M. & RUDNICKA, Irena. Badania nad budowa antygenowa pozbawionych antygenu topowego pałeczek *S. flexneri.* [**Studies on the Antigenic Structure of** *Sh. flexneri* **Strains lacking Type Antigen**] *Archiwum Immunol. i. Terapii Dośw.* Warsaw. 1957, v. 5, 77–91. [16 refs.] English summary.

In an examination of 10,696 recently isolated strains of *Shigella flexneri* 2·8% were found to lack type antigen; they varied in content of group antigens, 119 containing 3 and 4, and 168 containing 7 and 8. When the strains were carried through 1 subculture on agar, isolated colonies containing type antigen II were obtained in only 11%. Antigen II reappeared also in 1 of 10 strains subjected to passage in mice. The antigenic relationships of the antigen-deficient strains were investigated in cross-agglutination and absorption tests. The strains containing group antigens 7 and 8 showed no difference and were regarded as X variants; those containing 3 and 4 were found to contain b and c antigens, either separately or combined, and were regarded as Y variants, and differences were also observed in the strains containing 3, 4 and 6.

D. J. Bauer

NISHIMURA, C., NAKAMURA, M., OFUCHI, R., IWAHARA, S. & NOZAKI, Y. **Chemical Studies on the Endotoxin. I. Chemical Composition of Endotoxin of** *Shigella flexneri* **2B.** *Japanese J. Microbiol.* 1958, Apr., v. 2, No. 2, 179–85, 3 figs.

HARRIS, T. N., HARRIS, Susanna, OGBURN, C. A. & FARBER, Miriam, B. **Studies on the Transfer of Lymph Node Cells. IX. The Use of Dialysates of** ***Shigella*****-Trypsin Filtrates for** ***in vitro*** **Incubation with Lymph Node Cells.** *J. Immunology.* 1958, Apr., v. 80, No. 4, 308–15, 2 figs.

When *Shigella flexneri* suspensions were exposed to trypsin for 20 hours at 37°C. and the supernatant passed through a Seitz filter and then dialysed in a closed system it was found that antigenic material was present in the dialysate. This material fixed complement in the presence of *Shigella* antiserum and gave rise to agglutinins when injected into rabbits.

When normal rabbit lymph node cells were incubated in such dialysates and then washed so as to remove any detectable traces of antigenic material the transfer of the lymph node cells to irradiated rabbits led to the appearance of *Shigella* antibodies in their sera. The porosity of the cellophane tubing used for dialysis was considered to be uniform and it is thought that the molecular weight of the dialysable antigenic material is substantially less than 10,000.

J. Nagington

HARRIS, Susanna & HARRIS, T. N. **Studies on the Transfer of Lymph Node Cells. X. Estimation of Amounts of** ***Shigella*****-Trypsin Antigen associated with the Lymph Node Cells during** ***in vitro*** **Incubation.** *J. Immunology.* 1958, Apr., v. 80, No. 4, 316–23, 3 figs. [10 refs.]

The amount of antigenic material in the dialysed filtrates of *Shigella flexneri* supensions treated with trypsin as described above was estimated by means of the antibody produced by irradiated rabbits after inoculation with normal lymph node cells which had been incubated with the filtrate.

Of the antigenic material in the dialysate only about 0·5% was removed by the lymph node cells during 30 minutes' incubation. The greater part of this material, but not all, could be found in association with the cells.

Antibody was produced by the recipient rabbits when the lymph node cells had taken up as little as 10^{-7} mgm. or less of antigenic material. With a lymph node cell suspension of 2×10^8 cells this represents about 5×10^{-16} mgm. per cell and if the molecular weight of the antigen is of the order of 1,000 then the average cell takes up only a few hundred molecules of antigen in order to be able to initiate antibody production.

[For earlier parts, see this *Bulletin*, 1957, v. 32, 390, *bis*.]

J. Nagington

MARBERG, K., ALTMANN, G. & ESHKOL-BRUCK, A. **Observations on Resistance to Sulfadiazine and Antibiotics in Shigellosis.** *Amer. J. Trop. Med. & Hyg.* 1958, Jan., v. 7, No. 1, 51–7. [26 refs.]

2 series of 100 consecutive shigella strains isolated in Israel during 1953–55 and 1956 were examined for sulphonamide and antibiotic sensitivity.

About 50% of the strains were resistant *in vitro* to sulphadiazine. This is similar to the trend noted in the Far East where there is a gradual increase of resistant strains.

The first series of strains were all sensitive to chloramphenicol, but in the second series there were 16 resistant *Shigella flexneri* and 3 resistant *Sh. dysenteriae I* (Shiga) strains. Chloramphenicol-resistance was accompanied by resistance to tetracycline in 16 of these strains.

In about half of the patients infected with the resistant strains the infection was not affected by treatment. Several infections were clinically severe and there were 3 deaths.

J. Nagington

LINZENMEIER, G. & SEELIGER, H. P. R. Isolierung und Differenzierung enteropathogener Colibakterien aus Stuhlproben mit Hilfe von Antibiotikastreifen. **[The Isolation and Differentiation of Pathogenic** ***E. coli*** **from Stools with the aid of Antibiotic containing Filter Paper Strips]** *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 171, Nos. 4/5, 293–7, 2 figs. [10 refs.]

The increasing resistance of *Escherichia coli* O 111: B 4 to streptomycin and other antibiotics has at least had the advantage of facilitating its laboratory isolation in the authors' bands. Stools are plated on to 10% sheeps' blood agar, and in the centre of the area of heavy inoculation the authors place a filter paper strip containing 60 μgm. of streptomycin at one end and 36 μgm. of chloramphenicol at the other. Isolated colonies growing within the zones of inhibition are tested in the ordinary way by slide agglutination against specific antisera and confirmed biochemically and by tube agglutination.

Orientating work with streptomycin only was done by this technique during 1955–6. With pathogenic *E. coli* type O 111: B 4, the commonest pathogen of this group in the area concerned, 22 out of 81 isolations were made only with the aid of streptomycin strips, as the blood agar plates in question were covered with *Proteus* up to the margins of the zone of inhibition around the antibiotic. With a further 17 positive stools, the isolation of pathogenic *E. coli* was greatly simplified by this method. More recently, *Proteus* strains have also become streptomycin-resistant, but only 8% in the authors' laboratory are chloramphenicol-resistant as well. On the other hand, 72% of *E. coli* type O 111: B 4 strains are resistant to chloramphenicol, so that the impregnation of filter paper strips with chloramphenicol has become increasingly useful for the isolation of these resistant pathogenic *E. coli* strains.

B. Moore

LEDERBERG, J. & ST. CLAIR, Jacqueline. **Protoplasts and L-Type Growth of** ***Escherichia coli.*** *J. Bacteriology.* 1958, Feb., v. 75, No. 2, 143–60, 5 figs. [Numerous refs.]

From the experimental work presented, and a critical review of published work on the subject, the authors have reached the conclusion that the L forms of DIENES and KLIENEBERGER are protoplasts which form colonies by an aberrant type of growth due to the absence of a normal cell wall. The cell wall defect may arise in one of several ways. It may be produced by the action of penicillin in blocking some essential step in the synthesis of the wall, *i.e.* by external inhibition, or it may be due to an internal genetic block. There are so far 2 probable examples of the latter. One is auxotrophic for diaminopimelic acid—an amino-acid component of many bacterial cell walls—and the other is an L form of *Proteus* which even crude bacterial hydrolysates are unable to restore to the normal B form.

[It is not possible adequately to summarize the many arguments and hypotheses contained in this paper and it should be read in its entirety by those interested.]

J. Nagington

HOLLÓS, I. & BARNA, A. **Electronmicroscopic Studies of the Fine Structure of** *Escherichia coli. Acta Microbiologica.* Budapest. 1958, v. 5, No. 3, 279–85, 6 figs. [25 refs.]

ISHII, K. & SEVAG, M. G. **Isolation and Characterization of a Yellow Pigment from** *Escherichia coli. Arch. Biochemistry.* 1958, Sept., v. 77, No. 1, 41–9, 1 fig. [10 refs.]

LIPPERT, Elisabeth. Beiträge zur Biologie des Dyspepsiecoli. [**Contributions to the Biology of Pathogenic Coli Strains**] *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 171, Nos. 4/5, 298–312, 7 figs. [31 refs.]

The author reports a study of 12 strains of pathogenic *Escherichia coli,* including 4 of type O 111: B 4, 6 of type O 55: B 5 and 2 of type O 86: B 7. These were tested biochemically and serologically by the Kauffmann methods, without any notable findings. The strains behaved like other *E. coli* strains as regards growth in various synthetic media. Preparations from agar culture stained for flagella by Leifson's method showed peritrichous flagellation with extremely long, delicate, undulant flagella, many of which were lying loose and unattached. They were first thought to be artifacts, until confirmed by appropriate control films of non-motile organisms. Although other *E. coli* strains did not produce such long flagella on nutrient agar, they did so when grown on chocolate agar. Morphological studies of the pathogenic strains on media containing lithium chloride or caesium chloride showed appearances similar to those seen with other *E. coli* strains.

B. Moore

ZAMENHOF, S. & GREER, S. **Heat as an Agent producing High Frequency of Mutations and Unstable Genes in** *Escherichia coli.* [Correspondence.] *Nature.* 1958, Aug. 30, v. 182, 611–13.

A temperature of 60°C. for 3 hours was found to induce a mutation rate of the order of 10^{-2} to 10^{-3} among *Escherichia coli* survivors. The mutants were less resistant to heat than the original population and had not therefore been selected by the treatment. Both stable and unstable mutants occurred, some requiring nutrient factors, some forming pin-point colonies. A thiamine-requiring mutant was shown to give rise to recombinants on crossing, indicating that the mutation was of a chromosomal and segregating nature. The mutagenic and unstabilizing effect of heat seems to be of a different order from that of other agents, with the exception of 5-bromouracil.

Janice Taverne

FREDERICQ, P. & PAPAVASSILIOU, J. Croisement génétique de souches d'*Escherichia coli* marquées par production de colicine I. [**Genetic Crossing of Strains of** *E. coli* **marked by the Production of Colicine I**] *C.R. Soc. Biol.* 1957, v. 151, No. 11, 1970–73.

Crosses between *Escherichia coli* cells may give rise to fewer recombinants than expected when one of the parents has the ability to produce certain colicines. This is especially marked with a colicinogenic F+ parent, when crossing may even be sterile. In contrast, it is reported here that the fertility of *E. coli* crosses was not altered, nor the frequency of transfer of other characters affected, when one of the parents was able to produce colicine I. However, with this particular colicine, the colicinogenic character of the F+ parent was never transmitted to the recombinants. Recombinants were only found to produce colicine I when the F− parent was colicinogenic.

Janice Taverne

BIRD, T. J. & GOTS, J. S. **Temperature-Sensitive Requirement for Methionine or p-Aminobenzoic Acid in Strain of** *Escherichia coli. Proc. Soc. Exper. Biol. & Med.* 1958, Aug.–Sept., v. 98, No. 4, 721–3.

SHEININ, Rose. **Formation of Enzymes involved in Pyrimidine Synthesis and Amino Acid Metabolism in** *Escherichia coli. J. General Microbiol.* 1958, Oct., v. 19, No. 2, 365–79, 5 figs. [39 refs.]

HARRISON, A. P., Jr., BRUCE, A. K. & STAPLETON, G. E. **Influence of X Irradiation on Potassium Retentivity by** *Escherichia coli. Proc. Soc. Exper. Biol. & Med.* 1958, Aug.–Sept., v. 98, No. 4, 740–43, 3 figs.

SCHWARTZ, N. M. & STRAUSS, B. S. **Effect of Tryptophan Analogues on Reversion of a Tryptophan-requiring Strain of** *Escherichia coli.* [Correspondence.] *Nature.* 1958, Sept. 27, v. 182, 888.

PROHÁSZKA, L. & MURÁNYI, F. **The Role of Serine in the Metabolism of** *Escherichia coli* **Strains.** *Acta Microbiologica.* Budapest. 1958, v. 5, No. 3, 237–41. [24 refs.]

GUTHRIE, R. **Studies of a Purine-Requiring Mutant Strain of** *Escherichia coli.* **II. Selection of Revert Strains and its Evolutionary Significance.** *Genetics.* 1958, May, v. 43, No. 3, 386–94, 2 figs. [18 refs.]

ROGERS, D. E. & MELLY, Marian A. **Studies on Bacteriemia. IV. Alterations in Rabbit Mortality associated with Aging of a Culture of** ***Escherichia coli.*** *J. Exper. Med.* 1958, Apr. 1, v. 107, No. 4, 561–80, 11 figs. [13 refs.]

Broth cultures of *Escherichia coli* grown for 18–29 hours at 37°C. are usually lethal for adult rabbits when injected intravenously. Young cultures which have been grown for only 4 hours and which have the same viable count are seldom lethal.

The lethal action of old cultures depends on 2 factors: the bacteria and the filtrate. Injection of either old filtrate alone or washed old cells is not lethal. But either old or young washed cells suspended in old filtrate are lethal.

Both old and young cultures produce the same amount of bacteraemia and leucopenia. Old cultures differ from young ones is producing a progressive hypothermia instead of pyrexia. The hypothermia appears to be secondary to shock with hypotension with lasts for 90–150 minutes. Death takes place 18–24 hours after the injection and it is thought that the period of hypotension may produce death by rendering the animal highly susceptible to the action of endotoxin.

[See also this *Bulletin*, 1957, v. 32, 784, 785.]

J. Nagington

ALPER, T. & GILLIES, N. E. **Dependence of the Observed Oxygen Effect on the Post-Irradiation Treatment of Micro-Organisms.** *Nature.* 1958, Apr. 5, v. 181, 961–3, 2 figs.

When plate counts of *Escherichia coli* B cultures were made after exposure to ionizing and ultra-violet radiation it was found that fewer surviving organisms produced colonies on " Oxoid Blood Agar Base " than on " Difco Bacto Nutrient Agar ".

After exposure to heat (51°C.) or 0·6% phenol the surviving fractions were the same on the 2 media.

The reduction of the Oxoid counts was found to be due to dialysable substances, one of which was chloride ion and the other, which could not be identified, was associated with the peptone (Oxoid). This suggests that a particular part of the radiation damage is made apparent when these dialysable substances are present and in their absence the bacteria survive this damage.

It has been shown by HOLLENDER *et al.* [this *Bulletin*, 1951, v. 26, 426] that the presence of oxygen increases the lethal effects of ionizing radiations on bacteria. The medium-sensitive part of the damage to *E. coli* B was found by the authors to be less affected by oxygen than that part of the damage which was not medium-sensitive.

J. Nagington

CAREY, F. J., BRAUDE, A. I. & ZALESKY, M. **Studies with Radioactive Endotoxin. III. The Effect of Tolerance on the Distribution of Radioactivity after Intravenous Injection of** ***Escherichia coli*** **Endotoxin labeled with Cr^{51}.** *J. Clin. Investigation.* 1958, Mar., v. 37, No. 3, 441–57, 17 figs. [17 refs.]

Tolerance to *Escherichia coli* endotoxin was obtained in rabbits and mice by means of repeated injections and it was demonstrable by resistance to the pyrogenic action of endotoxin in the former and to its lethal action in the latter. The fate of injected endotoxin was followed by labelling it with radio-active ^{51}Cr.

In both animals, irrespective of tolerance, sublethal doses of endotoxin were rapidly removed from the blood stream so that less than 10% remained after 15 minutes, when approximately 60% of the endotoxin could be found in the liver.

There was a great difference between tolerant and non-tolerant animals when massive doses of endotoxin were injected. In tolerant animals endotoxin was removed from the circulation much more rapidly and the amount of it deposited in the liver and the leucocytes was greater. When there was sufficient circulating antibody to produce a precipitin titre of 1 in 8 or more there was a considerable deposition of endotoxin in the lungs. This localization was transient, especially in mice, and it did not appear to be essential for tolerance. Tolerance depended on the level of circulating endotoxin being kept down by the action of the liver.

J. Nagington

VICKERS, H. E. **The finding of** ***Bact. alkaligenes*** **on Blood Culture. Its Significance in 17 Unselected Cases.** *Postgraduate Med. J.* 1958, Sept., v. 34, No. 395, 484–8, 7 charts.

Bacterium alkaligenes is a normal inhabitant of the intestine which can infect most sites in the body. It is not infrequently grown in blood cultures from patients suffering from a prolonged febrile illness, but is usually considered a contaminant. The author describes 17 cases of such febrile illnesses associated with culture of the bacillus from the peripheral blood. The organism was isolated in the course of routine blood cultures without special preparation or techniques. It is described as a motile coliform organism of varying appearance, which failed to produce acid or gas from the usual carbohydrates and was negative to Gram stain. 7 of the patients were seen in the European Military Hospital in Karachi and the remainder in England.

The case histories of all are summarized and the conclusion is reached that the incidence of *Bact. alkaligenes* bacillaemia is much greater than is commonly recognized; it is not a contaminant of blood cultures; it is occasionally capable of causing serious disease, but is usually a secondary invader and often innocuous.

P. A. Clearkin

KNOLL, K. H. Vergleichende Pyrogenwirksamkeit von Bakterienpolysacchariden pathogener und apathogener *Klebsiella*-Stämme. [**The Pyrogenic Effect of Polysaccharides from Virulent and Avirulent** ***Klebsiella*** **Strains**] *Ztschr. f. Immunitätsf. u. Exper. Therap.* 1958, July–Aug., v. 116, Nos. 1/2, 2–14, 4 figs. [28 refs.]

The English summary appended to the paper is as follows:—

" Filtrates of autolysates of virulent and avirulent

Klebsiella strains differ in their pyrogenic and stimulatory effect. The action of these filtrates is not quite comparable to the action of the somatic polysaccharides. The endogenous lipopolysaccharides differ in the composition of the polysaccharid components. They have a different but marked pyrogenicity and a comparative but lower stimulatory effect. These properties do not depend upon the degree of virulence but on the type specificity of the S-polysaccharides. These substances differ from the capsular polysaccharides by a pyrogenic factor. This factor is a lipid bound to the polysaccharides. It mediates the pyrogenicity whereas the carbohydrates are responsible for the serological specificity."

JERZMANOWSKI, A. & UBYSZ-JERMANOWSKA, Krystyna. Zmienność maczugowców błonicy pod wpływem antybiotyków. Doniesienie I. Zmiany zachodzące pod wpływem działania penicyliny i aureomycyny. [**The Variation of** *Corynebacterium diphtheriae* **under the Influence of Antibiotics**] *Med. Dośw. i Mikrob.* Warsaw. 1958, v. 10, No. 2, 193–204, 8 figs. on 2 pls. [34 refs.] English summary.

Studies have been made of the effect of penicillin and chlortetracycline on the characters of 15 strains of *Corynebacterium diphtheriae*. In experiments with penicillin the organisms were grown for 24 hours in broth containing 0·05–20,000 units per cc. and then plated on blood agar. Many colonies were granular and larger than normal, not haemolytic, and contained elongated bacilli divided into segments by transverse partitions. The colonial form and morphology of the organisms reverted to normal after 1 passage in the absence of penicillin. In one instance a non-toxigenic variant of reduced size and forming small colonies was isolated from a *gravis* strain. In similar experiments with chlortetracycline small colonies were observed in 4 instances, but in most cases there was no change in colonial appearance and only slight changes in morphology. *D. J. Bauer*

BORECKA, Danuta & KOZAK, W. Wpływ toksyny błoniczej na zdolność żerną i ruchliwość leukocytów. [**The Influence of Diphtheria Toxin on the Phagocytic Ability and Motility of Leucocytes**] *Med. Dośw. i Mikrob.* Warsaw. 1958, v. 10, No. 2, 223–8. [15 refs.] English summary.

An investigation has been made of the effect of diphtheria toxin upon phagocytosis by rabbit leucocytes. In experiments carried out *in vitro* the percentage of leucocytes ingesting bacteria over a period of 30 minutes ranged from 78·7 to 87·2 in the presence of various dilutions of diphtheria toxin, the lowest of which contained 100 MLD per cc. The figures did not differ significantly from the value of 89% observed in a control experiment without diphtheria toxin. The phagocytic index was lower in the presence of the lowest dilution of toxin (7·6, compared with 11·9 in the control), but was unaffected in the remaining dilutions (10–11·9). No difference was observed in the percentage of motile leucocytes. Some increase in phagocytic index was observed in leucocytes taken after intervals of 1–10 days from rabbits inoculated with lethal doses of diphtheria toxin intravenously or subcutaneously. *D. J. Bauer*

PRÉVOT, A. R., MAGNIN, F., LEVREL, J., DUBY, D. & DE CADORE, F. Recherches sur le pouvoir pathogène de *Ramibacterium pleuriticum*. [**Studies on the Pathogenicity of** *Ramibacterium pleuriticum*] *Ann. Inst. Pasteur.* 1958, Sept., v. 95, No. 3, 241–52. [11 refs.]

The English summary appended to the paper is as follows:—

"1. *Ramibacterium pleuriticum* is the most frequently encountered species of the genus *Ramibacterium*.

"2. It is pathogenic for human beings; it possesses a peculiar affinity towards the respiratory and digestive tracts, and may be isolated principally from purulent pleurisy. All infections from which *R. pleuriticum* is isolated are comparable to ramibacteriosis (induced by *R. ramosum, R. alactolyticum, R. ramosoides, R. pseudoramosum* and *R. dentium*) and are quite different from natural or experimental corynebacteriosis.

"3. *R. pleuriticum* may be pathogenic when in pure culture (often for man, rarely for experimental animals). But it is particularly pathogenic for man when associated with other germs. It is above all a pyogenic bacterium; when associated with other germ, it may induce a pseudo-actinomycosis syndrome.

"4. But for a few exceptions, it is very sensitive to penicillin and to other classical antibiotics.

"5. Its morphology, biochemical properties, pathogenicity and response to antibiotics prove that it belongs to the genus *Ramibacterium* and not to the genus *Corynebacterium*."

MEYER, J., SARTORY, R., MALGRAS, J. & SCHURCH, P. Étude électrophorétique des tuberculines originales ou traitées par les antibiotiques spécifiques. [**Electrophoretic Study of Tuberculins and of Tuberculins treated by Specific Antibiotics**] *Ann. Inst. Pasteur.* 1958, Oct., v. 95, No. 4, 424–31, 6 figs. & 1 diagram.

The English summary appended to the paper is as follows:—

"Electrophoretic experiments have been carried out in order to study the action of isoniazid and streptomycin on old and pure (IP 48) tuberculins. The different proteic constituents have been fractionated by alcohol at low temperature and alternately at pH 6.8 and 4.6.

"These two techniques have allowed study of the structural alterations of tuberculins under the influence of the two antibiotics, and the changes of their tuberculinic activity.

"The findings show that isoniazid and to a lesser degree streptomycin, induce a decrease of the allergic activity of the tuberculin without altering its antigenic action."

CHANDRASEKHAR, S., DEMONTE, A. J. H. & SUBRAMANIAN, T. A. V. **Fatty Acids from the Lipids of Streptomycin Resistant Tubercle Bacilli.** *Indian J. Med. Res.* 1958, Sept., v. 46, No. 5, 643–7, 1 graph. [13 refs.]

"1. The fatty acids of *M. tuberculosis* H37RV sensitive and resistant to 1, 10 and 100 μg./c.c. streptomycin have been studied.

"2. The total lipids, total fatty acids, alpha-beta unsaturated acids were increased in the resistant strain; C_{27} phthienoic was decreased."

MACKEPRANG, B. **The Dispersing Effect of Ultrasonics on Mycobacteria.** *Acta Tuberculosea Scandinavica.* 1958, v. 35, No. 2, 126–38, 3 figs.

These investigations were made on the 5 types of mycobacteria used in the experiments described in the previous paper [this *Bulletin*, 1958, v. 33, 1173] and the same experimental procedures were followed, except that the period of ultrasonic vibrations was varied from 1 to 20 minutes.

Measurements of the optical densities of the suspensions made at the end of the various periods of vibration showed that the maximum increase in turbidity occurred after 2–5 minutes, and the examination of stained smears confirmed that the increase was due to the bacilli being more dispersed. These films showed that the maximum dispersion occurred after 5–10 minutes' vibration when the suspensions consisted of units of which 80% were single bacilli and none of the clumps contained more than 5 bacilli; the average number of bacilli per 100 units varied with the strains from 111 to 138 in spite of the strains showing a very wide variation before being vibrated. Centrifuging these suspensions for 50 minutes at 3000 r.p.m. increased slightly the percentage of single bacilli, and although centrifuging without ultrasonic vibration also increased the proportion of single bacilli, the suspensions still contained clumps of more than 5 bacilli.

Viable counts also confirmed the increase in smaller units, but after vibrating for 5 minutes, a decrease in the count occurred, indicating destruction of some of the bacilli. *S. R. M. Bushby*

STAIB, F. Resistenz von Hefen und hefeartigen Pilzen gegen Schwefelsäure. [**The Resistance of Yeasts and Yeast-Like Fungi to Sulphuric Acid**] *Ztschr. f. Hyg. u. Infektionskr.* 1958, v. 145, No. 1, 26–33.

In the author's Institute at Würzburg 1 part of sputum is treated with 5 parts of 8% (v/v) sulphuric acid before cultivation for the isolation of *Mycobacterium tuberculosis.* Such cultures, on Hohn's medium, are frequently spoiled by the growth of yeast-like fungi. He therefore tested the action of sulphuric acid, both 8% and 12% as used for faeces, on a variety of such organisms, by simply adding a suspension to the acid and cultivating directly on beer wort agar after 5, 10, 20, 30, 45 and 55 minutes. *Candida albicans* was always killed by 12% acid in 10 minutes and by 8% in 20, but the majority of strains of *Candida krusei* and *Candida tropicalis* were much more resistant, most surviving the treatment as applied to sputum and some for much longer. Of 20 species in all tested, some strains of 9 survived 12% acid, and of 13, 8%, for 20 minutes. It was also shown that 9 of these species are capable of growth on Hohn's medium despite its malachite green content. [A remedy for this difficulty is not suggested.] *L. P. Garrod*

GRUMBACH, Françoise, with the technical collaboration of Sabine CLAVEL. Activité antituberculeuse expérimentale du pyrazinamide (PZA). [**Experimental Antituberculous Activity of Pyrazinamide (PZA)**] *Ann. Inst. Pasteur.* 1958, June, v. 94, No. 6, 694–708, 2 figs. [18 refs.]

In Dubos medium and in Youmans medium with albumin, both at *p*H 5·5, inocula of 0·01 mgm. per 5 ml. of H37Rv and strains of tubercle bacilli resistant to isoniazid, streptomycin and PAS were inhibited by 25 μgm. pyrazinamide (PZA) per ml. during 12 days' incubation.

In mice, in which 30 mgm. PZA per day for 4½ months produced no toxic changes, PZA exerted a marked but temporary effect on the development of tuberculosis. In these experiments in which the mice were infected intravenously with 0·05 mgm. H37Rv and treated daily with 10 mgm. PZA orally, there was very little evidence of the disease 20–25 days later when 50% of the untreated animals were dead, but with doses of 3 mgm. and 5 mgm. there was very definite evidence of the disease. The activity shown by the 10 mgm. dose was comparable to that of 0·05 mgm. isoniazid or 0·5 mgm. α-ethyl-*iso*nicotinic thioamide, and when these drugs were given in these doses in conjunction with 10 mgm. PZA, there was no macroscopic evidence of tuberculosis and the number of bacilli recoverable from the tissues was 1/10th–1/100th of that recoverable from the tissues of the animals given the drugs singly. PZA was also active *in vivo* against a strain insensitive *in vivo* to doses of 1 mgm. isoniazid per mouse.

When treatment of the mice infected with H37Rv was delayed for 14 days, the number of bacilli present in cultures of the lungs of the animals killed on the 49th day clearly showed the enhanced activity of the combined therapy, although it was either not apparent or was much less when assessed by the number of bacilli present in smears of the lung and spleen; the author assumes that this difference is due to many of the organisms being dead. Isoniazid-sensitivity tests on the recovered bacilli showed that whereas those from the animals treated with PZA + isoniazid were still 100% sensitive to 0·05 μgm. isoniazid per ml., 0·2% of those from the animals treated with isoniazid alone were resistant to 0·5 μgm. isoniazid per ml. In another experiment in which treatment was again delayed for 14 days but continued for 135 days, with some of the animals being killed at intervals, the number of viable bacilli in the lungs was found to be lowest at 60 days in the animals treated with PZA 30 mgm. alone and isoniazid 0·3 mgm. alone, after which the organisms became resistant to the drugs. From the animals on combined therapy, however, bacilli were not grown during treatment after the sixtieth day although they were still present in smears, and 2 months after the end of treatment a few bacilli were recovered from the spleen and liver of 2 mice but not from their lungs; these bacilli were still sensitive to the drugs. *S. R. M. Bushby*

Viallier, J. & Cayré, R. M. Sur la sensibilité à la viomycine de 189 souches de *Mycobacterium tuberculosis*. **[Sensitivity of 189 Strains of *Myco. tuberculosis* to Viomycin]** *C.R. Soc. Biol.* 1957, v. 151, No. 11, 1925–6.

Observations were made on 189 strains of freshly isolated tubercle bacilli from various tuberculous specimens and the tests were done in the Youmans medium with horse serum.

49 of the strains were sensitive to 1 μgm. viomycin per ml. and most of these were sensitive to 1 μgm. streptomycin per ml. Of the remaining strains, 109 were inhibited by 10 μgm. viomycin per ml., the majority being sensitive to 5 μgm. per ml., and by 10 μgm. streptomycin per ml., and 26 were sensitive to 1–5 μgm. viomycin per ml. but resistant to 20 μgm. streptomycin per ml. 5 strains were resistant to 10 μgm. streptomycin per ml., 2 being resistant to 100 μgm. per ml., one having come from a patient who had been treated with 68 gm. of the antibiotic.

S. R. M. Bushby

Kanai, K. & Yanagisawa, K. **Kanamycin in Experimental Guinea Pig Tuberculosis.** *Japanese J. Med. Sci. & Biol.* 1957, Oct., v. 10, No. 5, 363–6.

Kanamycin is an antibiotic with activity *in vitro* similar to that of streptomycin, and in experiments described in this paper its antituberculous activity is compared with that of the clinical antituberculous drugs in guineapigs.

In the first experiments, the animals were infected intravenously with streptomycin-sensitive organisms and treatment was started 14 days later; 1 group of 10 animals was given 10 mgm. streptomycin each day and a similar group was given 5 mgm. Kanamycin twice daily for 7 weeks. At the end of this period the animals were killed and cultures were made of the lungs, livers and spleens in order to obtain an approximate estimate of the number of bacilli present.

The number of colonies grown from 10 mgm. of the tissues of the control untreated mice ranged from 3,100 to 116,000 in the lungs, 1,300 to 11,300 in the liver and 1,500 to 36,000 in the spleen. The numbers grown from these tissues, respectively, of the Kanamycin-treated animals ranged from 0–32 (6 being nil), 0–250 (4 being nil), and 0–7,000 (1 being nil), and from the streptomycin-treated animals, 0–83 (4 being nil), 0–230 (7 being nil), and 0–570 (2 being nil).

Similar experiments were made with streptomycin-resistant tubercle bacilli and with isoniazid-resistant bacilli, the treatments being in this case isoniazid, 10 mgm. daily, and Kanamycin, and with PAS-resistant tubercle bacilli, the treatments being PAS, 200 mgm. daily, and Kanamycin. In these experiments in which treatment was started the day after infection and continued for 31 days, Kanamycin exerted the same repressive effect on the multiplication of the bacilli as in the first experiments. However, whereas streptomycin and PAS had apparently little effect on their respective resistant strains, isoniazid had an apparent effect against its resistant strain, for no organisms were recovered from the liver or lung and only 2–75 were recovered from the spleens (the number of bacilli recovered from the spleens of the Kanamycin mice was 0 in 6 animals and 1 in the seventh animal). [As the number of bacilli recovered from the untreated animals infected with these resistant strains is not given, the reader cannot be certain of these effects and the few bacilli recovered from the isoniazid-treated animals may merely indicate that the isoniazid-resistant strain was of low virulence.] *S. R. M. Bushby*

Kanai, K., Katsuyama, S., Nakajima, M. & Yanagisawa, K. **Some Aspects of *in vitro* Activities of Kanamycin against Tubercle Bacilli.** *Japanese J. Med. Sci. & Biol.* 1957, Oct., v. 10, No. 5, 367–71, 4 figs.

Kanamycin inhibits the growth of tubercle bacilli in Kirchner or Dubos media in concentrations of about 1 μgm. per ml. In this paper, experiments are described in which its bactericidal properties were determined.

In the first experiment, Kanamycin in concentrations of 100 μgm. per ml. was added to 7–12-day-old cultures of tubercle bacilli in Sauton medium, and after intervals of 1, 2, 3, 5, 6, 7 and 8 days' incubation the growth was collected, dried between filter paper and a viable count was made on a weighed portion of it after it had been ball-milled. The procedure was also repeated with 100 μgm. streptomycin per ml., and in order to determine the number of bacilli present before the antibiotics were added, a viable count was made at that stage.

The results showed that whereas with streptomycin the viable count fell slowly from 10^{7} to approximately $10^{2 \cdot 3}$, with Kanamycin the number of viable bacilli was approximately $10^{4 \cdot 8}$ at the third day and decreased only slightly during the next 5 days.

In a second experiment in which the same procedure was followed, except that streptomycin was not included, and the viability was determined only at the eighth day, the activity of the growth to reduce 2, 3, 5-triphenyltetrazolium chloride was determined. The total growth in the presence of the antibiotic was 210 mgm. compared with 1,900 mgm. in the control culture and the number of viable units was 84×10^{4} as compared with 16×10^{10} in the control; the enzymatic activity was nil.

The third experiment was designed to show whether resistant variants would develop in a single step from mass inocula of the strains H37Rv and H2. A dense suspension of the bacilli and dilutions of it were inoculated on to Kirchner agar medium containing Kanamycin ranging from 1–100 μgm. per ml. and incubated for 6 weeks. From the original suspension of the H2 strain, 6 colonies grew on 100 μgm. per ml., 21 on 50 μgm. per ml., and a large number on 10 nd 5 µgm. per ml. No colonies grew from the H37Rv train on 50 or 100 µgm. Kanamycin per ml. Although hese results strongly suggest that resistant variants can e readily isolated, the resistance of the bacilli was not onfirmed by retesting them. *S. R. M. Bushby*

HART, P. D'A. & LOVELOCK, J. E. **Protection of Living Cells against Acid by certain Non-Ionic and Amphoteric Soaps.** *Nature.* 1958, Aug. 2, v. 182, 304–5.

Certain non-ionic soaps, namely polyoxyethylene ethers, have no effect on the multiplication of the tubercle bacillus *in vitro* although they have a very definite effect *in vivo*—some suppressing, others enhancing, the infection. The site of action is considered to be within the monocytes [this *Bulletin*, 1954, v. 29, 1258], the interior of which is acidic or can become acidic. In the present work the investigators have examined the effects of these agents on the resistance of tubercle bacilli to acids.

Suspensions of the bacilli were suspended in 1 M and 0·1 M HCl (*p*H 0·6 and 1·2 respectively), in 0·1 M citrate buffer at *p*H 3·5, 5·0 and 7·0, and in no buffer (*p*H 7·0), each containing 1·25% of the soap and 0·025% albumin, and after 3½ hours at 37°C. the number of viable bacilli was determined.

To the surprise of the workers all the non-ionic soaps tested, irrespective of their *in vivo* action, and including saponin, lecithin and polypropylene glycol, afforded some protection, the effect being to increase the concentrations of hydrogen ions required for rapid destruction a hundredfold. Molecules of similar size but without soap-like activity, *e.g.* polyethylene glycol, sucrose and suramin, afforded no protection.

Triton *WR*1339, the soap which previous work has shown to be highly active in suppressing tuberculosis, also afforded some protection *in vitro* against the effects of acid on *Mycobacterium phlei*, *Staphylococcus pyogenes*, *Escherichia coli*, and streptococci of the *viridans* type; it also gave some protection to red cells against acid haemolysis.

Other acids tested were perchloric and phosphoric and against these the protection was similar; there was no protection against alkali. No explanation is offered to account for this action but the fact that there is a parallel between the ability of the soaps to discharge the colour of fluorescein in acid solutions may provide a clue towards the understanding of their action.

S. R. M. Bushby

HARDY, A. V., DUNBAR, F. P., JEFFERIES, Mildred B., BOND, J. O. & LEWIS, A. G., Jr. **Bacteriological and Epidemiological Studies of Pulmonary Diseases associated with Atypical Acid-Fast Bacilli.** *Amer. J. Pub. Health.* 1958, June, v. 48, No. 6, 754–9.

This paper is a report from the Florida State Board of Health and the State Tuberculosis Board, and it covers the period from November 1955 to October 1957.

During the first year 36 atypical acid-fast bacilli were isolated and 72 during the second. The organisms were at first isolated and identified in one hospital and the increase in number was probably due to the fact that the laboratory workers were becoming aware of the organisms rather than that the incidence of the infection had increased.

The characteristics of the primary culture were usually not sufficiently different from those of tubercle bacilli for the certain identification of the organism, and on Löwenstein-Jensen medium the rate of growth was often a little slower, rather than quicker, than that of the tubercle bacillus. Although the yellow to orange colour and the moist smooth appearance of colonies often helped to identify these organisms, the catalase test proved the most helpful, for 72 of the 75 were much more strongly positive than H37Rv. Absence of cording in Dubos medium without Tween also helped.

Of the 75 strains, 5 were photochromogens, 11 scotochromogens and 59 non-photochromogens. The neutral-red reaction was very variable. Of the 73 strains tested, 3 were sensitive to PAS, 5 to isoniazid and 10 to streptomycin, and of 20 tested against other drugs, 16 were sensitive to promine, 13 to streptovaricin and 8 to cycloserine. Of the 73 tested in guineapigs, all failed to produce progressive disease and of 56 tested in mice, 25 of 47 non-photochromogens were virulent but none of the 5 scotochromogens produced disease in these animals.

On 37 patients yielding these strains there was more information. In 10, tubercle bacilli had been isolated before the atypical strain was isolated from sputum or gastric contents. In all but 3 of the 37 cases the organism was repeatedly isolated, in 10 for more than a year. In 8 of 10 cases with lung surgery, the organism was isolated from the tissue.

Epidemiological observations show that the infection is selective for white males, the relative rarity in Negroes being very striking; the incidence was 4·9 per 100 patients for white males, 2·9 for white females and 0·2 and 0·3 for Negro males and females respectively. The infection is mainly in the older patients. There was no evidence to suggest that the infection was related to previous chemotherapy treatment, and no multiple cases were identified in any household.

Clinically there was no finding to differentiate the infection from tuberculosis although one-fifth of the patients were tuberculin-negative. *S. R. M. Bushby*

YAOI, H., TAKEI, M. & TSUJI, Y. **Biological Studies on *Mycobacterium ulcerans* (MacCallum). VI. Triphenyl Tetrazolium Chloride Reduction.** *Japanese J. Microbiol.* 1958, Jan., v. 2, No. 1, 17–21, 3 figs.

The dehydrogenase activity of the PD strain of *Mycobacterium ulcerans* was compared with those of H37Rv, BCG, *Mycobacterium muris*, *Mycobacterium avium* and *Mycobacterium phlei* by adding 0·5 ml. 0·25% triphenyltetrazolium chloride to 1 ml. bacillary suspension (5 mgm.) and 0·5 ml. of substrate, which was usually M/50 sodium lactate, in a Thunberg tube. After incubating, the formazan produced was extracted with acetone and measured spectrophotometrically.

Estimations made at temperatures ranging from 5°–80°C. showed that the maximum activity of each of the strains was at 45°C., and that each showed some activity at 5°C. Except for *Myco. phlei* and *Myco. avium*, *Myco. ulcerans* showed relatively higher activity at 27°C. than the other strains. *Myco. phlei* and *Myco. avium* showed slight activity at 65°C. and 55°C., respectively.

The activity of *Myco. ulcerans* was compared in 8 substrates; the highest activity was recorded in sodium lactate and in the other substrates the activities were in the descending order of sodium pyruvate, sodium malate, glucose, sodium citrate, lactose, sodium succinate, sodium fumanate. No figures are given.

When examined under comparable conditions, the activity of *Myco. ulcerans* was equal to that of H37Rv and BCG but it was less than those of the other mycobacteria. When grown in Dubos medium the maximum activity of *Myco. ulcerans* was reached earlier when the culture was incubated at 33°C. than at 37°C. Isoniazid, 1μgm. per ml., abolished the activity of H37Rv but it had no effect on that of *Myco. ulcerans*; streptomycin, 1μgm. per ml., caused a temporary disappearance of the activity which returned, however, to its original level on further incubation. The activity of *Myco. ulcerans* was inhibited by 1·25 mgm. iodacetic acid or silver nitrate per ml. and by 0·25 mgm. copper sulphate per ml.; acetoaldehyde, 1:4, and glycerol, 1:2, also abolished the activity.

[See also this *Bulletin*, 1958, v. 33, 882 *bis*.]

S. R. M. Bushby

TAMEMASA, O. & TSUTSUMI, S. **On the Metabolism of Mycobacteria. I. Dehydrogenase Activities of** *Mycobacterium lepraemurium*. *Japanese J. Exper. Med.* 1958, June, v. 28, No. 3, 183–97, 3 figs. [18 refs.]

HANKS, J. H. **Assay of the Fate of Mycobacteria in Cell and Tissues Cultures.** *Amer. Rev. Tuberculosis.* 1958, May, v. 77, No. 5, 789–801, 1 fig. [25 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 53.]

ISHIMOTO, N., SAITO, M. & ITO, E. **Composition of the Cell Wall of** *Staphylococcus aureus* **209P.** [Correspondence.] *Nature.* 1958, Oct. 4, v. 182, 959–60.

ORTEL, S. Die Phagentypen bei penicillinempfindlichen, penicillinresistenten und mehrfach antibiotikaresistenten Staphylokokken. **[The Phage Types of Staphylococci, Susceptible or Resistant to Penicillin or Resistant to Several Antibiotics]** *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 172, Nos. 1/2, 44–53, 3 figs. [29 refs.]

2,074 strains of *Staphylococcus aureus* isolated in Greifswald hospitals in 1956–7 from various pathological lesions were tested for phage type and antibiotic resistance. 1,555 strains were typable, 946 belonging to phage Group I, 110 to Group II and 379 to Group III. Phage Group II had the highest proportion of penicillin sensitive strains; strains resistant only to penicillin were distributed over Groups I and III and I/III, while strains sensitive to more than one antibiotic were most common in Group III. The overall proportion of antibiotic resistant strains is not given.

A few strains trained to grow in increasing concentration of antibiotics became less sensitive to the typing phages but did not undergo any definite change in phage type.

R. E. O. Williams

PECORI, V., ALTUCCI, P., CIMINO, R., MAZZACCA, G. & RICCARDI, C. Aspetti della resistenza stafilococcica agli antibiotici. **[Resistance of Staphylococci to Antibiotics]** *Riv. Istituto Sieroterap. Ital.* 1958, July–Aug., v. 33, No. 4, 256–69, 3 graphs. [40 refs.]

The English summary appended to the paper is as follows:—

" The incidence of resistance toward 10 antibiotics in 100 strains of coagulase-positive staphylococci from hospitalized patients and in 100 strains from outpatients was investigated.

" A higher incidence of resistant strains was observed among staphylococci isolated from hospitalized patients.

" The aspects of this phenomenon are discussed."

RUBINSTEIN, H. M. **Studies on the Mechanism of Action of Staphylocoagulase.** *Brit. J. Haematol.* Oxford. 1958, July, v. 4, No. 3, 326–43, 8 figs. [Numerous refs.]

Highly purified staphylococcal coagulase prepared by the method of DUTHIE and LORENZ [this *Bulletin*, 1952, v. 27. 690] was used to re-examine some aspects of the coagulase reaction and especially the relationship of the coagulase-reacting factor (CRF) to prothrombin. No difference could be found in the behaviour of the 2 on Seitz filtration. With sufficiently high concentrations of coagulase, prothrombin could be shown to be consumed when coagulase and prothrombin react together. From this and other evidence it is concluded that prothrombin and CRF are identical, and that the reaction between coagulase and prothrombin produces a thrombin-like substance, which attacks fibrinogen, at some site other than that attacked in normal blood clotting, to produce a material somewhat different from ordinary fibrin.

R. E. O. Williams

COLLARD, P. & OJEHOMON, Norma. **Studies on the Succinic Dehydrogenase Activity of** *Staphylococcus pyogenes*. *West African J. Biol. Chem.* 1958, July–Sept., v. 2, No. 2, 29–35, 2 figs.

KRZYWY, T., STANECKI, J. & FAST, J. Zmiany własności biochemicznych *Staphylococcus aureus* uodpornianego *in vitro* na antybiotyki. **[The Changes of Biochemical Properties of** *Staphylococcus aureus* **immunized** *in vitro* **to Antibiotics]** *Med. Dośw. i Mikrob.* Warsaw. 1958, v. 10, No. 2, 185–92. [11 refs.] English summary.

A study has been made of changes occurring in the biochemical characters of *Staphylococcus aureus* during the course of adaptation to various antibiotics. Little change in properties was noted during the development of penicillin resistance. After adaptation to streptomycin, phosphatase activity and the ability to ferment mannitol were reduced and there was some loss of haemolysin. Adaptation to chloramphenicol produced a loss of necrotoxin and haemolysin and an increase in pigment formation. Organisms resistant to chlortetracycline showed little change in properties. In strains resistant to oxytetracycline coagulase activity was reduced and pigment formation was increased. The results obtained are shown in detail in a table.

D. J. Bauer

SUGIYAMA, H., BERGDOLL, M. S. & DACK, G. M. **Increased Serum Glutamic-Oxalacetic Transaminase of Monkeys following Oral Administration of Staphylococcal Enterotoxin.** *Proc. Soc. Exper. Biol. & Med.* 1958, May, v. 98, No. 1, 33–6. [11 refs.]

The glutamic-oxalacetic acid transaminase (GOT) activity of the serum was tested 6 hours after administration of purified enterotoxin to monkeys. The value was found to be about double that observed before feeding the toxin. Of 29 monkeys that vomited after being given enterotoxin only about 15% failed to show a rise in GOT activity; 40% of monkeys that failed to vomit after enterotoxin, perhaps because of immunity acquired from a previous dose, showed a significant rise. Administration of material prepared from non-food-poisoning staphylococci by the method used for enterotoxin production did not alter the GOT activity of the serum.

R. E. O. Williams

BARTELS, H. A., BLECHMAN, H. & CAVALLARO, J. **The Inhibitory Action of Saliva on the *in vitro* Growth of Beta Hemolytic Streptococci.** *J. Dental Res.* 1958, Aug., v. 37, No. 4, 654–60, 1 fig. [22 refs.]

Culture media in which fresh saliva had been incorporated could not support the surface growth of *Micrococcus lysodeikticus, Staphylococcus aureus, Neisseria flavescens, Bacillus cereus* or haemolytic streptococci. This inhibitory effect was abolished by heating the saliva or passing it through a Seitz filter before incorporation in the medium, but not by the addition of catalase. The inhibition could not be simulated by the addition of lysozyme.

It is concluded that the oral microflora, during growth, produce some factor that inhibits the growth of haemolytic streptococci and other organisms, and that this factor is not hydrogen peroxide.

R. E. O. Williams

WILLIAMS, R. E. O. **Laboratory Diagnosis of Streptococcal Infections.** *Bull. World Health Organization.* Geneva. 1958, v. 19, No. 1, 153–76, 2 figs. [30 refs.]

The author gives detailed descriptions of the laboratory methods used in the diagnosis of streptococcal infections. These include formulae of the media used, the collection of specimens, the isolation and recognition of streptococci on primary culture, the specific recognition, grouping and typing of *Streptococcus pyogenes* and the identification of other streptococci. The estimation of serum antistreptolysin titre is also described and the interpretation of the results of this test is discussed fully.

[This excellent article contains a large amount of information about technical methods which it is impossible to summarize and the interested reader should refer to the original paper for details.]

Morag C. Timbury

JABLON, J. M., SAUL, Madelyn & SASLAW, M. S. **Microtechnic for Determination of Titers of Antistreptolysin O.** *Amer. J. Clin. Path.* 1958, July, v. 30, No. 1, 83–6.

Capillary blood is collected and allowed to clot in a glass tube 1·25 mm. in diameter and 90 mm. long; the tube is then spun and 0·03 ml. of the serum taken up into a micropipette. Dilutions are made according to the series employed by RANTZ and RANDALL (*Proc. Soc. Exper. Biol. & Med.*, 1945, v. 59, 22) and incubated with 0·05 ml. of streptolysin for 15 minutes at 37°C.; 0·05 ml. of a 5% suspension of rabbit red cells is then added and haemolysis determined after 30 minutes' incubation. Within the limits of ±1 tube, the micro technique agreed well with the standard method [though 23% of tests showed 1 tube higher and only 6·5% a lower value].

R. E. O. Williams

MADOFF, Sarabelle & DIENES, L. **L Forms from Pneumococci.** *J. Bacteriology.* 1958, Sept., v. 76, No. 3, 245–50, 5 figs.

"L forms were obtained from pneumococci and propagated in transplants on soft horse serum agar media containing 10 to 20 per cent sucrose and 0·1 to 0·3 per cent $MgSO_4$. The pneumococci grew to L forms only in a narrow range of penicillin concentration (0·1 to 0·3 units per ml) but the L forms once produced were not sensitive to high concentrations of penicillin. There was a marked variability in the results obtained with different strains. Growth was not improved in pour plates and did not occur in broth.

"The L colonies of the pneumococcus differ in appearance from most L colonies, especially from those of the closely related streptococcus. The colonies contain large amounts of extracellular material and long chains of granules which are probably produced by mechanical stretching of the large bodies that contain the granules."

STERNE, M. **The Growth of *Brucella abortus* Strain 19 in Aerated Dialysed Media.** *J. General Microbiol.* 1958, June, v. 18, No. 3, 747–50, 1 fig. [11 refs.]

A detailed and illustrated description is given of the apparatus used for repeated culture of *Brucella abortus* in the diffusate which accumulates in Cellophane tubing immersed in papain digest of horse muscle containing 3% glucose, 1% Marmite and 0·15% disodium hydrogen phosphate adjusted to *p*H 6·4 and Seitz filtered. Air is delivered to the culture through a 40 ml. No. 3

sintered disk and foaming is controlled with Dow-Corning silicone antifoam A in technical light oil. The Cellophane used is Visking's regenerated cellulose tubing, diameter $1\frac{7}{8}''$. The culture is harvested from the apparatus at intervals of 3–4 days and the apparatus is sterilized at longer intervals by passing steam through it to avoid the development of undesirable mutants. The average total harvest with this apparatus on a run of 2–3 weeks (*i.e.* the period between successive sterilizations) was 400 × 10^{12} viable organisms, *i.e.* 6,000–7,000 doses of vaccine; so that about half a million doses of vaccine can be produced in such apparatus in the course of a year and in economy of labour, time and space, the method is a great improvement on the older ones. *J. W. McLeod*

Freeman, B. A. & Vana, Lucile R. **Host-Parasite Relationships in Brucellosis. I. Infection of Normal Guinea Pig Macrophages in Tissue Culture.** *J. Infect. Dis.* 1958, May–June, v. 102, No. 3, 258–67, 16 figs. [21 refs.]

The method of obtaining monocytes was to bleed out young guineapigs by cardiac puncture and then inject intraperitoneally 30 ml. Hanks balanced salt solution (BSS) containing 0·005% heparin and, after massaging the abdomen gently for 5 minutes, to withdraw the fluid accumulated. Sediment obtained in tubes treated with silicone was twice washed with cold Hanks BSS to remove heparin and tissue fluids.

About a million cells were suspended in a small quantity of serum, and, after addition of bacteria, were left at 37°C. for 3 hours while phagocytosis took place. This material was then diluted with Hanks BSS plus 25% serum, distributed in 2 ml. amounts in screw-capped bottles, and these were then incubated. Rabbit serum was used.

Observations on leucocytes showed that at outset there was predominance of small round cells. After a few hours at 37°C. these were mainly transformed to large amoeboid cells. These cells changed little in the first 48 hours, during which time granulocytes and red blood corpuscles disappeared.

After 4 days, however, the macrophages began to diminish, at first rapidly and later more slowly.

The growths of brucellae in such material were arbitrarily considered to be "macrophage cultures" and the bacteria liberated from the sediment obtained by light centrifugalization to represent the phagocytosed bacteria.

Bacteria were liberated from phagocytes by using a Virtis homogenizer.

When the growth in such cultures was compared with that in controls in all respects similar except for absence of leucocytes, the surprising result was obtained that the growth within the phagocytosed cells seemed to be accelerated, *i.e.* the lag phase observed in the controls was eliminated. The same effect could not be obtained with an extract of the disintegrated macrophage cells.

There was no obvious relationship between presumed virulence of a culture and its capacity to grow more rapidly in the presence of macrophages.

J. W. McLeod

Lin, Tong Ming. **Studies on Pertussis Vaccine. I. Use of Cow's Blood in Bordet-Gengou Medium for Pertussis Vaccine Preparation.** *J. Formosan Med. Ass.* 1958, Feb., v. 57, No. 2, 100–104.

Cow's blood was used to replace sheep's blood in Bordet-Gengou medium for the growth of *Haemophilus pertussis.* Studies on the growth of organisms and the potency and toxicity of the vaccine produced on this medium have given satisfactory results.

F. T. Perkins

Munoz, J., Schuchardt, L. F. & Verwey, W. F. **Anaphylaxis in** *Hemophilus pertussis*-**Treated Mice. I. Passive Anaphylaxis with Heterologous Rabbit Antibody.** *J. Immunology.* 1958, Feb., v. 80, No. 2, 77–84. [40 refs.]

Passive anaphylaxis was induced in female Swiss Webster strain of white mice by intraperitoneal injection of 250–2,000 million *Haemophilus pertussis* cells 4 days prior to 187–200 μ [*sic,* presumably μgm.] of anti-bovine-serum-albumin, which had been prepared in rabbits. The mice so sensitized were given an anaphylactic shock by injection of bovine serum albumin.

The authors studied the variables of such a system and found that for mice given 2,000 million pertussis cells and sensitized with 187 μ of albumin nitrogen, an optimal quantity of bovine serum albumin of about 0·04 mgm. was found for challenge whereas a challenge dose as high as 5–10 mgm. was considerably less effective. Mice given 250 million pertussis cells and 218 μ of antibody nitrogen were highly susceptible to shock whereas 10 million cells failed to induce shock. The time elapsing between injection of cells and antibody nitrogen to give shock was optimal at 4 days, with a return to normal sensitivity by the ninth to twelfth day. After injection of the anti-bovine-serum-albumin sensitivity lasted for 3 days, reaching an optimal point immediately after intravenous injection and 30 minutes to 6 hours after intraperitoneal injection.

No relationship was obtained between development of anaphylactic sensitivity (active or passive) and development of histamine sensitivity. Adrenalectomy, like *H. pertussis* treatment, also increased the sensitivity of mice to passive anaphylaxis. *F. T. Perkins*

De Caro, M. & Samarani, Elena. Azione della oleandomicina e dell'idrazide dell'acido isonicotinico su alcuni ceppi di *H. pertussis.* **[The Action of Oleandomycin and Isonicotinic Acid Hydrazide on some Strains of** *H. pertussis*] *Rendiconti Istituto Superiore di Sanità.* Rome. 1958, v. 21, Pts. 4/5, 433–6.

The English summary appended to the paper is as follows:—

"The antibacterial actions of oleandomycin, tetracyclin, sigmamycin and isonicotinic hydrazide were studied on some strains of *H. pertussis.* The inhibiting dose of the first of these was 15–20 μg/cm³ and for the other two antibiotics 10 μg/cm³. Isonicotinic hydrazide showed no inhibiting activity in doses of 1000 μg/cm³."

WON, W. D. & LIEN, O. G., Jr. **Fish Hydrolyzate Media for** *Pasteurella pestis*. *Amer. J. Hyg.* 1958, July, v. 68, No. 1, 81–4, 1 fig. [12 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 39.]

OGG, J. E., FRIEDMAN, S. B., ANDREWS, A. W. & SURGALLA, M. J. **Factors Influencing the Loss of Virulence in** *Pasteurella pestis*. *J. Bacteriology*. 1958, Aug., v. 76, No. 2, 185–91, 1 fig. [11 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 40.]

HECKLY, R. J., ANDERSON, A. W. & ROCKENMACHER, M. **Lyophilization of** *Pasteurella pestis*. *Applied Microbiol.* Baltimore. 1958, July, v. 6, No. 4, 255–61, 5 figs.

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 41.]

LYLES, S. T. & GARDNER, E. W. **Studies on the Antigenic Structure of** *Vibrio cholerae*. **I. The Effects of Heat on the Agglutinating Antigens.** *J. Infect. Dis.* 1958, July–Aug., v. 103, No. 1, 67–74. [21 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 45.]

ISTRATI, G., STEFĂNESCO, V., ISTRATI, Maria, MUNTIU, N. & ARDELEANU, T. Recherches expérimentales sur l'immunité active antitétanique. II-ème communication: Le titrage de la limite inférieure obligatoire en unités protectrices de l'anatoxine tétanique. [**Experimental Studies on Active Immunity against Tetanus. II. Titration of the Lowest Acceptable Limit of Protective Units of Tetanus Toxoid**] *Arch. Roumaines Path. Expér. et Microbiol.* 1957, Dec., v. 16, No. 4, 587–92.

For Part I, see this *Bulletin*, 1958, v. 33, (1087).

MEISEL-MIKOŁAJCZYK, F. **Polysaccharides isolated from** *Cl. perfringens* **Type D.** *Bull. Acad. Polonaise des Sci.* Warsaw. Sér. Sci. Biol. 1958, v. 6, No. 8, 313–18. [12 refs.]

KAWATOMARI, T. **Studies of the L-Forms of** *Clostridium perfringens*. **I. Relationship of Colony Morphology and Reversibility.** *J. Bacteriology*. 1958, Sept., v. 76, No. 3, 227–32, 6 figs. [13 refs.]

COSTLOW, R. D. **Lecithinase from** *Bacillus anthracis*. *J. Bacteriology*. 1958, Sept., v. 76, No. 3, 317–25, 5 figs. [22 refs.]

SMITH, P. F. & LYNN, R. J. **Lipid Requirements for the Growth of Pleuropneumonialike Organisms.** *J. Bacteriology*. 1958, Sept., v. 76, No. 3, 264–9, 2 figs. [18 refs.]

BARTONELLA

NAUCK, E. G. Morphologische und biologische Eigenschaften der Bartonellen. [**Morphology and Biological Characters of Bartonella**] Reprinted from *Forsch. u. Fortsch.* 1958, May, v. 32, No. 5, 129–31, 2 figs.

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 30.]

FUNGI

WALKER, Jacqueline. **Effect of Ultraviolet Irradiation on the Spores of** *Trichophyton sulfureum*. *Arch. Dermat.* 1958, Aug., v. 78, No. 2, 153–6, 8 coloured figs. on pl.

"The spores from an original single-spore isolate of Trichophyton sulfureum were subjected to ultraviolet irradiation of a wavelength of 2537 A. Five categories of mutants were induced which differed from the parent strain in colony morphology and color. No mutants were found in the uniradiated controls. Some of the induced mutants resembled other dermatophytes."

PRÉVOT, A. R. & DE MELLIS, Y. Étude de la sensibilité *in vitro* d'*Actinobacterium israeli* et d'*Actinobacterium meyeri* à l'oléandomycine. [**Study of** *in vitro* **Sensitivity of** *Actinobacterium israeli* **and** *Actinobacterium meyeri* **to Oleandomycin**] *Ann. Inst. Pasteur.* 1958, Sept., v. 95, No. 3, 354–6.

The English summary appended to the paper is as follows:—

"*Actinobacterium* are not sensitive to therapeutical dosages of sulfones, as are aerobic actinomycetes. On the contrary, they are sensitive to antibiotics of the erythromycin group, particularly to oleandomycin. The treatment by this antibiotic should then be tried in these infections, for which there exists no specific therapy."

FALCONE, G. & NICKERSON, W. J. **Physiological Bases of Morphogenesis in Fungi. 6. Effect of Sulfur-Deficiency on Growth and Cellular Division of** *Candida albicans*. *Giorn. di Microbiol.* Naples. 1957, Sept.–Oct., v. 4, No. 2, 105–18, 6 figs. [26 refs.]

RICKETTSIAE

BALAEVA, N. M. **Study of the Properties of** *Rickettsia mooseri* **cultivated in Clothes Lice (Preliminary Communication).** *J. Microbiol., Epidemiol. & Immunobiol.* London. 1957, v. 28, Nos. 5/6, 823–9, 1 fig. [20 refs.] [Translated from Russian.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 27.]

PARETSKY, D., DOWNS, C. M., CONSIGLI, R. A. & JOYCE, B. K. **Studies on the Physiology of Rickettsiae. I. Some Enzyme Systems of** *Coxiella burnetii. J. Infect. Dis.* 1958, July–Aug., v. 103, No. 1, 6–11, 2 figs. [19 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 27.]

TARASEVICH, I. V. **A Study of Experimental Q Fever Infection in** *Hyalomma plumbeum plumbeum* **Panz.** *J. Microbiol., Epidemiol. & Immunobiol.* London. 1957, v. 28, Nos. 5/6, 818–23, 3 figs. [10 refs.] [Translated from Russian.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 28.]

BACTERIOPHAGES

RAETTIG, Hansjürgen. Bakteriophagie. 1917–1956. Zugleich ein Vorschlag zur Dokumentation wissenschaftlicher Literatur. Vol. I. Einführung, Sachregister, Stichwortverzeichnis. pp. xix + 215, 8 figs. Vol. II. Autorenregister. [**Bacteriophagia 1917–56. An Introduction to the Literature. Vol. I. Subject Matter, Vol. II. Author Index**] 344 pp. 1958. Stuttgart S: Gustav Fischer, Eberhardstrasse 10, Schliessfach 431. [DM44.]

This work consists of 2 slim and elegant volumes bound in attractive sky-blue limp cloth which are clearly intended to be slipped into the pocket as a kind of *Exkursionsflora* when tracking down phages in their native haunts. However, the kind of habitat which Dr. Raettig has in mind is the library rather than the sewage works, since the two volumes comprise a highly efficient source book which will enable the reader to locate all the relevant references on colicinogenization, lysogenization, hybridization or sterilization in less time than it takes to poke a probe through a pack of punched cards. The work is in fact a summary of the author's own card index, which appears to contain 5,655 references in vernaculars ranging from Hebrew to Japanese, and the task facing the phagologist of the future is presaged by an introductory section on bibliographical analysis which contains some alarming curves illustrating the phenomenal growth of phage literature during the last few years. Connoisseurs of indexes (*Inhaltsverzeichnissachverständige*) will take pleasure in *Molkereigewerbe* hard followed by *Morphologie* (doughnuts, ghosts, *Lysome* and *Organellen*) and even those who cannot read the text will enjoy the appearance of the two volumes on their bookshelves.

D. J. Bauer

ROSENBAUM, M. & PRESTON, W. S. **Protein and Nucleic Acid Relationships in** *Escherichia coli* **Infected with Phage T2.** *J. Bacteriology.* 1958, Aug., v. 76, No. 2, 155–9, 1 fig. [18 refs.]

Upon infection with phage T2, *Escherichia coli* B cells synthesize 5-hydroxymethyl cytosine, a pyrimidine characteristic of the phage DNA, instead of the cytosine of normal bacteria. It was found that the addition of chloramphenicol to an infected culture blocked the formation of phage DNA (recognized by its pyrimidine) if it was added up to 9 minutes after infection. After 9 minutes, however, although chloramphenicol still prevented protein synthesis, the synthesis of phage DNA was not interrupted. It seems that the enzyme concerned with the change of synthesis from bacterial nucleic acid to phage DNA does not arise from the activation of an existing enzyme system, but must be a special protein synthesized in the beginning of the latent period. It is also unlikely that the small amount of protein which penetrates the bacterium with the phage DNA [this *Bulletin*, 1957, v. 32, 368] constitutes this special protein.

Two attempts to label and isolate this special protein had opposite results. Radio-active glycine present during the first few minutes of infection appeared to be incorporated into a ribonucleoprotein fraction (assumed to be concerned with phage materials since the synthesis of host protein stops upon phage adsorption). However, when the experiment was repeated with labelled alanine, no preferentially labelled component could be detected. *Janice Taverne*

HERSHEY, A. D., BURGI, Elizabeth & STREISINGER, G. **Genetic Recombination between Phages in the Presence of Chloramphenicol.** [Correspondence.] *Virology.* New York. 1958, Aug., v. 6, No. 1, 287–8, 1 fig.

The number of T2 recombinants produced from *Escherichia coli* B cells multiply infected with 2 phage mutants is reported to be unaffected by chloramphenicol. Irradiation with ultra-violet light increased the frequency of recombination about 5-fold, whether or not chloramphenicol was present. It appears therefore that although chloramphenicol inhibits protein synthesis in the infected bacterium, it does not affect DNA synthesis or genetic recombination. [Other workers have rejected the possibility that recombination actually occurs after the chloramphenicol has been removed.] *Janice Taverne*

EDGAR, R. S. **Mapping Experiments with** ***r*2 and *h*** **Mutants of Bacteriophage T4D.** *Virology.* New York. 1958, Aug., v. 6, No. 1, 215–25, 2 figs. [10 refs.]

A genetic analysis has been made of 13 plaque type mutants of T4D. They are mutants of the *r*II region, and are located in 11 sites forming 2 functional groups or cistrons. (2 mutants which do not give recombinants upon mixed infection of a bacterium are said to be in the same cistron.) No obvious differences were found between the *r*II region of T4D and that of the related strain T4B analysed by BENZER (*Proc. Nat. Acad. Sci.*, 1955, v. 41, 344).

Host range mutants of T4 are described here for the first time; 12 of them have been studied and their location in the linkage structure of T4D determined. Wild type phage h+ adsorbed to the resistant bacteria *Escherichia coli* K12/4 but much more slowly than the h mutants. Phenotypic mixing occurred among the progeny of a mixed infection with h$^-$ and h+ phage.

Janice Taverne

PFEFFERKORN, E. & AMOS, H. **Deoxyribonucleic Acid Breakdown and Resynthesis in T5 Bacteriophage Infection.** [Correspondence.] *Virology.* New York. 1958, Aug., v. 6, No. 1, 299–301, 1 fig.

When T2 infects *Escherichia coli* B cells no loss of total DNA is observed, so that the rate of breakdown of bacterial nucleic acid must equal the rate of synthesis of phage DNA. Also, once the maximum rate of phage DNA synthesis has been achieved it is not altered by chloramphenicol. This letter reports that, in contrast to T2, rapid depolymerization of bacterial DNA occurred upon infection with T5. About half of the total DNA was lost in the first 4 minutes of the latent period. Chloramphenicol reduced the rate of loss. Chloramphenicol added later when the maximum rate of phage DNA synthesis had been achieved suppressed further synthesis.

In other words, T5, unlike T2, has "a striking effect . . . on the hydrolysis of host DNA. Chloramphenicol prevents both this hydrolysis and T5 DNA synthesis".

Janice Taverne

MULCZYK, Marian & KUCHAREWICZ, Alina. Badania nad fagami dla pałeczek czerwonkowych. [**Studies on Phages** *Shigella* **Bacilli**] *Archiwum Immunol. i Terapii Dośw.* Warsaw. 1957, v. 5, 109–27, 3 figs. [36 refs.] English summary.

An investigation has been made of the valence of 4 *Shigella* phages (F1–F4) isolated from the faeces of chickens in experiments with the various types of *Sh. dysenteriae*, *Sh. flexneri*, *Sh. boydii* and *Sh. sonnei*. The range of activity was very limited, and was usually confined to 1 or 2 types only. The titre was 10^2, but rose to 10^7 when the phages were passaged on the sensitive types. When the phages were re-examined after 50, 100 and 200 passages they were found to have acquired additional valencies while still retaining their original ones, the identity of the new types lysed depending on the type on which passage was carried out. The detailed behaviour of the phages is shown in tables.

D. J. Bauer

COETZEE, J. N. **The Characterization of a Series of** *Proteus* **Bacteriophages.** *South African J. Lab. & Clin. Med.* 1958, June, v. 4, No. 2, 147–57, 2 figs. [26 refs.]

"A series of bacteriophages active on strains of P. mirabilis and P. vulgaris have been isolated and their biological, physical and serological properties studied.

"Many of the phages form turbid plaques. A few have been photographed and reveal a tadpole-like morphology. They are all citrate independent. Many Proteus mirabilis phages attack Proteus vulgaris organisms and *vice versa*, but none of them have any action on other members of the family Enterobacteriaceae tested. A serological scheme of classification has been proposed which correlates well with other methods of grouping these phages."

VIRUSES

In this section the abstracts are arranged as far as possible in the following order:—General; Psittacosis-lymphogranuloma viruses; Pox viruses; Respiratory and other viruses; Enteric viruses; Arthropod-borne viruses; Others.

QUERSIN-THIRY, Lise. **Action of Anticellular Sera on Virus Infections. I. Influence on Homologous Tissue Cultures Infected with Various Viruses.** *J. Immunology.* 1958, Sept., v. 81, No. 3, 253–60, 6 figs. [17 refs.]

The author reviews briefly work that has shown that antibacterial sera may inhibit the action of bacteriophages and colicines on some bacteria (DA COSTA CRUZ, *C. R. Soc. Biol.*, 1926, v. 95, 1006; BORDET, *ibid.*, 1948, v. 142, 257). A similar protective effect of anticellular serum on appropriate cells against viruses has been observed.

An antiserum against HeLa cells in high concentrations causes agglutination of the cells and, in the presence of complement, lysis. With lower concentrations of antiserum the cells remain perfectly normal in appearance, but sub-agglutinative doses of antiserum were found to protect the cells against the cytopathic effect of polioviruses. At higher dilutions of serum the protective effect was lost. The effect was due to a direct action of antibody on the cells because:—

(a) Prior treated and washed cells were protected.

(b) Residual virus titres from tubes containing cells and antiserum were higher than in tubes containing cells only, *i.e.* virus adsorption was impeded by anticellular serum.

(c) HeLa cells were protected by anti-HeLa-cell serum against vaccinia virus that had been grown on the chorio-allantoic membrane but not by anti-chorio-allantoic sera.

Similar effects were noted with anti-monkey-kidney serum and viruses cytopathic for these cells. It was found that viruses differed greatly in their susceptibility to the blocking effect of anticellular sera. Thus Coxsackie A strains which grow in HeLa or monkey kidney (A 13, 18 and 9) a strain of herpes simplex and some ECHO strains (Types 2, 4, 5, 6, 8, 9, 10, 11, 13) were more susceptible than polioviruses.

A variety of virulent and attenuated poliovirus strains were about equally susceptible, as was ECHO 12 and a strain of vaccinia. Newcastle disease (NDV) Coxsackie B strains (B 1, 3, 4 and 5) and ECHO strains (1, 3, 7) were much less susceptible. With NDV and Coxsackie B viruses it is said that high doses of sera against other human cell strains which do not agglutinate HeLa cells protect them from the cytopathic effect.

An elegant method of demonstrating these effects is to prepare and infect monolayer cultures by the Dulbecco plaque technique and then to drop filter paper disks soaked in normal or anticellular sera on to the agar. With NDV virus, cell destruction occurs to the edge of the disk of antiserum, whereas with ECHO 9 virus and a high-titre anti-monkey-kidney serum, 3 zones may be observed spread out from the disk of antiserum: (i) a narrow clear zone of cell destruction (by antiserum), (ii) a zone of healthy cells, (iii) a zone of cell destruction due to viral action. *A. J. Beale*

Bang, F. B. & Niven, Janet S. F. **A Study of Infection in Organized Tissue Cultures.** *Brit. J. Exper. Path.* 1958, June, v. 39, No. 3, 317–22, 8 figs. on 3 pls. [10 refs.]

Fragments of human and animal respiratory tissues were grown in culture by the watch-glass rayon net method of Fell and Robisson (*Biochem. J.*, 1929, v. 23, 767).

Ciliary action and formation of mucus persisted in cultures of human embryo trachea and nasal mucosa. No lesions could be detected histologically in cultures infected with common cold and influenza viruses. When cultures of ferret nasal mucosa were infected with the WS strain of influenza virus the surface cells were rapidly destroyed, and the same effect was seen in cultures from ferrets which were immune to influenza. Cultures of tracheal fragments from chicks 1 day old showed patches of epithelial necrosis with some destruction of underlying fibroblasts after infection with a virulent strain of Newcastle disease virus. Extensive multiplication of vaccinia and herpes viruses occurred in explants of human skin. *D. J. Bauer*

Strauch, D. & Rott, R. Vergleichende Untersuchungen über die Isolierung des Psittakosevirus aus Wellensittichen mit Hilfe des Mäuseversuches und der Züchtung im embryonierten Hühnerei. [**Comparative Studies on the Isolation of Psittacosis Virus from Budgerigars by Inoculation of Mice and Eggs**] *Ztschr. f. Hyg. u. Infektionskr.* 1958, v. 145, No. 1, 5–13. [20 refs.]

Evidence is produced that the 8-day hen egg inoculated by the allantoic route is more sensitive for the detection of psittacosis virus than is the white mouse injected intraperitoneally. Of 101 budgerigars examined virus was recovered from 28 by means of eggs but from only 10 when mice were used: 28·7% as against 9·9%. *S. P. Bedson*

Kawakami, Y., Kaji, T., Sugimura, K., Omori, T. & Matumoto, M. **Miyagawanella: Psittacosis-Lymphogranuloma Group of Viruses. 5. Isolation of a Virus from Feces of Naturally Infected Sheep.** *Japanese J. Exper. Med.* 1958, Feb., v. 28, No. 1, 51–8. [13 refs.]

A virus belonging to the psittacosis-lymphogranuloma group was isolated from the faeces of 8 out of 25 apparently healthy sheep in Hokkaido, Japan. A 20% suspension of the faeces, clarified by centrifugation (3,000 r.p.m. for 30 mins.), with streptomycin added, was used to inoculate guineapigs intraperitoneally; passage was made from them to eggs by the yolk sac route with a 20% liver-spleen suspension. The relationship of this virus to those of bovine encephalomyelitis, goat pneumonitis and, more particularly, of enzootic abortion of ewes, has yet to be established. *S. P. Bedson*

Roots, E. & Rott, R. Herstellung eines hochwertigen komplementbindenden Antigens aus gereinigtem Psittakose-Virus. [**The Preparation of an Effective Complement-Fixing Antigen with Purified Psittacosis Virus**] *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 172, Nos. 1/2, 29–36, 5 figs. [21 refs.]

The virus in the amniotic and allantoic fluids of infected eggs was freed first of all of extraneous material by centrifugation and trypsinization and then frozen and thawed 20 times. The suspension was then centrifuged at 15,000 g. for 30 minutes on two occasions. The water-clear supernatant fluid was used as antigen; it proved of high activity and was entirely devoid of anti-complementary activity. The antigenic activity was almost completely deposited by centrifugation at 100,000 g. for 90 minutes. *S. P. Bedson*

Sureau, P., Dodin, A. & Brygoo, E. R. Culture du virus de la vaccine. I. Essais de culture du virus de la vaccine sur culture de cellules épithéliales de rein de lapin. [**Culture of Vaccinia Virus. I. Attempts to culture Vaccinia Virus on Tissue Culture of Rabbit Kidney Epithelial Cells**] *Ann. Inst. Pasteur.* 1958, Sept., v. 95, No. 3, 294–301, 5 figs. [14 refs.]

The authors of this paper set out to determine whether vaccinia virus could be grown in rabbit kidney cell cultures, their aim being to produce a vaccine bacteriologically sterile and easy to dry from the frozen state.

Their published results show that they can grow the virus in their culture system. In this paper, however, there is no information relevant to the problems posed regarding vaccine production. *Colin Kaplan*

Rozee, K. R., Williams, G. L. & Van Rooyen, C. E. **Detection and Titration of Asian Influenza A Virus by HeLa Cell and Monkey Kidney Cell Cultures.** *Science.* 1958, Sept. 12, v. 128, 591–2, 1 fig.

A strain of Asian influenza virus was titrated in cultures of monkey kidney and of HeLa cells, the haemadsorption technique [Vogel and Shelokov, this *Bulletin*, 1957, v. 32, 1203] being used for the estimation of end-points. Titrations were read after 2 days' incubation, when a suspension of chicken red cells was added to each culture, left in contact for a few minutes and removed by gentle washing. The number of red cell clumps adhering to the cell sheet was linearly related to the dilution of the virus inoculum. Approximately 0·08 of a virus haemagglutinating unit could be detected by this technique. Haemadsorption was prevented by previous treatment of the cultures with an

Asian influenza antiserum but not with influenza A-prime or B antisera. The method was successfully used for virus isolation from sputum specimens but egg inoculations are considered to be more sensitive for this purpose. *H. G. Pereira*

HORVÁTH, S. **Study on the Cyclic Multiplication of Influenza and ND Viruses in Tissue Cultures.** *Acta Microbiologica.* Budapest. 1958, v. 5, No. 2, 123–31, 8 figs. [21 refs.]

The multiplication of influenza (strains PR8 and Weiss) and Newcastle disease viruses was studied in cultures of minced chick embryo chorio-allantoic membrane. Virus multiplication was followed by infectivity titrations of culture fluids. The growth curves showed an initial lag period lasting 3 to 4 hours followed by 2 cycles of virus multiplication separated by a constant period. The experimental conditions required for the demonstration of cyclic multiplication of viruses are discussed and the difficulties in the estimation of virus yields are stressed. *H. G. Pereira*

SVET-MOLDAVSKY, G. I. & GHENDON, I. Z. **Demonstration of Influenza Virus using Gel-Diffusion Method of Precipitation directly in Tissue Culture.** *Acta Virologica.* Prague. 1958, Apr.–June, v. 2, No. 2, 120–22, 1 fig. [10 refs.]

A technique for the detection and identification of influenza viruses in tissue cultures by gel-diffusion precipitation is described. Antisera against different virus types are diluted in agar and placed in narrow test tubes inserted end downwards in tissue culture tubes. 3 agar tubes containing different antisera are sealed to a glass rod support and introduced into each culture immediately after addition of the virus inoculum. Virus antigen accumulating in the culture diffuses through the agar and forms specific precipitation lines by which the virus type can be identified. The method is applied to strains of influenza A, A-prime and B propagated in cultures of embryonic human lung. *H. G. Pereira*

HENLE, W.; PAUCKER, K. **Interference Between Inactivated and Active Influenza Viruses in the Chick Embryo. I. A Re-Evaluation of Factors of Dosage and Timing using Infectivity Titrations for Assay** [HENLE & PAUCKER]. *Virology.* New York. 1958, Aug., v. 6, No. 1, 181–97, 5 figs. [33 refs.] **II. Interference by Incomplete Forms of Influenza Virus** [PAUCKER & HENLE]. *Ibid.*, 198–214, 6 figs. [36 refs.]

I. Previous studies on interference between inactivated and active influenza viruses have been based, in most cases, on results of haemagglutinin titrations. The problem was reinvestigated in the present work by means of egg infectivity titrations by which it was possible to detect minor degrees of multiplication of the challenge virus. The time required for influenza virus (PR8) inactivated by ultra-violet radiation to establish solid interference in the allantoic cavity of fertile eggs was found to vary inversely with the size of interfering dose. With an interfering dose of 850 haemagglutinating (HA) units it took 9 hours for complete interference to be established, whereas with an interfering dose of 20 to 100 HA units, interference was marked but not yet complete at 24 hours. Challenge before the full establishment of interference resulted in virus yields varying directly with interfering dose, except when this dose was lower than 20 HA units, when constant yields were obtained following a wide range of challenge doses. These findings suggest that the degree of interference increases with time, becoming solid shortly after 24 hours following the interfering dose. The possibility of a few cells remaining fully susceptible after interfering doses of 20 or more HA units is not supported. The minimal interfering dose may correspond to multiplicities of 1 or more virus particles per cell, but even with lower multiplicities, production of interferon [ISAACS and LINDENMANN, this *Bulletin*, 1957, v. 32, 1203] might account for the total involvement of available cells.

II. Incomplete forms of influenza B virus were prepared (a) by undiluted allantoic passages, (b) by the use of partially inactivated virus inocula or (c) by cultivation in HeLa cells. The materials obtained were purified by red cell adsorption and elution in order to eliminate external soluble (S) antigen, and inactivated by ultra-violet irradiation. The interfering activity of incomplete virus preparations was comparable with that of standard preparations as long as their content of internal S did not fall below a certain minimum. Haemagglutinin free from S antigen was obtained by ether treatment and failed to induce interference. Incomplete virus produced in HeLa cell cultures was also free from S antigen and unable to interfere. S antigen preparations obtained by ether treatment of elementary bodies or derived from infected chorio-allantoic membranes could not be shown to possess any interfering activity. This result may have been due to inactivation of free S by ultra-violet irradiation or to failure of S antigen to be adsorbed or to penetrate into host cells. It is suggested that the virus component responsible for the induction of interference is the S antigen or its ribonucleic acid. *H. G. Pereira*

PEREIRA, Marguerite S. **Typing of Q-Phase Influenza-A Virus by Serum-Neutralisation Tests in Monkey-Kidney Cultures.** *Lancet.* 1958, Sept. 27, 668–9, 1 fig.

The haemadsorption property of influenza A viruses grown in monkey kidney cultures was used for the development of a serum-neutralization technique which gave strain-specific results with 6 standard virus strains. The method was successfully used for the typing of Q-phase Asian influenza strains which could not be directly typed by haemagglutination-inhibition. Q-phase strains were frequently encountered during the 1957 epidemic and the frequency distribution of haemagglutination-inhibition titres given by 500 Asian influenza strains against a standard ferret antiserum is presented. *H. G. Pereira*

ADA, G. L., PERRY, B. T. & ABBOT, A. **Biological and Physical Properties of the Ryan Strain of Filamentous Influenza Virus.** *J. General Microbiol.* 1958, Aug., v. 19, No. 1, 23–39, 2 text figs. & 6 figs. on pl. [20 refs.]

A strain of influenza A virus (strain Ryan F) giving rise to a high proportion of filaments in embryonated egg fluids was compared with other type A strains (PR8 and A/Persian Gulf/2/52) by means of haemagglutination and egg infectivity titrations and by electron microscopy. A mutant of the Ryan strain consisting almost exclusively of spherical particles (Ryan sph.) was also included in the study. Filaments and spheres present in the original strain were partially separated and concentrated by red cell adsorption and elution followed by differential centrifugation. Virus filaments were shown to be infective, a maximum of 6 filaments corresponding to 1 egg infectivity dose (EID50). The equivalent figures for the spherical PR8 and Ryan mutant were 18 and 14 respectively. The number ($\log_{10}$) of egg infectivity doses per agglutination dose ($\log_{10}$ EID50/AD) given by Ryan fluids harvested late (72 hours) varied from 6·9 to 4·9 and the authors suggest that factors other than thermal inactivation may contribute to the low ratios occasionally found. Dry weight estimations with purified materials gave average values of 6×10^{-10} μgm. for PR8 spheres, $9{\cdot}5 \times 10^{-10}$ μgm. for Ryan spheres and 180×10^{-10} μgm. for Ryan filaments. The average weight of spheres and short rods obtained from Ryan F preparations by centrifugation was less than $5{\cdot}8 \times 10^{-10}$ μgm. Purified preparations containing over 95% of the total dry weight as filament material were obtained. The figures presented are used for the estimation of virus nucleic acid, reported in the following paper.

[The valuable material contained in this paper could have been presented more clearly. The difficulty in following some of the authors' arguments is sometimes increased by frequent errors in the numerical data presented. As an example, the number of PR8 particles per agglutinating dose is given as 16 in the summary and as 16×10^6 in the main text; these figures are said to be in close agreement with the corresponding experimental value of $18 \pm 4 \times 10^{-6}$ shown in one of the tables.] *H. G. Pereira*

ADA, G. L. & PERRY, B. T. **Properties of the Nucleic Acid of the Ryan Strain of Filamentous Influenza Virus.** *J. General Microbiol.* 1958, Aug., v. 19, No. 1, 40–54, 1 fig. [24 refs.]

A filamentous strain of influenza virus (Ryan F) was submitted to purification procedures giving final preparations containing mainly long filaments (Ryan FF) or spheres and short filaments (Ryan sup.). The amount and type of nucleic acid contained in such preparations was analysed and compared with that of PR8 strain and of a spherical Ryan mutant (Ryan sph.). The nucleic acid concentration of Ryan sph. and Ryan sup., expressed on a weight basis, gave values of 0·87 and 0·75%, respectively, the latter being only slightly lower than that of PR8 (0·91%). The corresponding average value for Ryan FF was 0·25%. The estimated amount of nucleic acid (RNA) per virus particle was, however, considerably higher in Ryan FF (44×10^{-12} μgm.) than in Ryan sup. ($4{\cdot}4 \times 10^{-12}$ μgm.) or in PR8 ($5{\cdot}5 \times 10^{-12}$ μgm.). As a measure of the contamination of the virus particle by host cell nucleic acid the base ratios adenine + uracil : guanine + cytosine were determined. Ratios of 1·20 found for Ryan sph. and Ryan sup. were comparable with values found for other influenza A strains (1·22–1·28) and significantly different from that of host cell RNA (0·66). Ryan FF, however, gave a ratio (0·94) intermediary between those of virus and host cell RNA. As an indication of the intimate incorporation of RNA in the virus particles, it was found that treatment of the various preparations by ribonuclease did not result in changes of concentration or base ratios of RNA and did not affect virus infectivity or haemagglutinating activities. The concentration and base ratios of RNA present in soluble complement fixing antigen obtained by ether treatment of Ryan and PR8 viruses was next investigated and revealed that the RNA in Ryan FF is heterogeneous and contains a "virus type" fraction. Fragmentation of Ryan filaments by repeated cycles of freezing and thawing resulted in an increase in haemagglutinating activity unaccompanied by changes in infectivity [see also DONALD & ISAACS, this *Bulletin*, 1955, v. 30, 78] or by alterations in concentration or type of associated RNA. It is tentatively suggested that the mode of formation of virus spheres or filaments depends on the fragmentation of forming filaments at points with increased nucleic acid concentration.

H. G. Pereira

CHOPPIN, P. W., OSTERHOUT, S. & TAMM, I. **Immunological Characteristics of N.Y. Strains of Influenza A Virus from the 1957 Pandemic.** *Proc. Soc. Exper. Biol. & Med.* 1958, July, v. 98, No. 3, 513–20. [18 refs.]

Strains of Asian influenza virus isolated in New York from September to November 1957 were compared with each other and with previously occurring influenza A viruses. Sensitivity of the new strains to normal serum inhibitors of haemagglutination was variable, 3 of the 6 strains studied being insensitive, 1 moderately sensitive and 2 highly sensitive (RI/4/57 and RI/5/57). Normal non-specific serum inhibitors could be destroyed by cholera filtrate treatment. Sensitivity to normal serum inhibitors was directly correlated with reactivity with antibodies, as demonstrated by serum-neutralization and haemagglutination-inhibition tests. The 6 New York strains formed an immunologically homogeneous group and some of the more reactive strains showed in haemagglutination inhibition tests, cross reactions with influenza A-prime (FM1) and to a smaller extent with Swine and PR8 strains. Such cross-reactions are accepted by the authors as an indication of a slight antigenic relationship between Asian and former influenza virus strains.

Paired sera from 13 influenza patients seen in 1957 were tested by haemagglutination-inhibition against the 6 New York strains and prototype Asian (Japan/305/57), Swine, PR8 and FM1 strains. None of the sera reacted with the prototype Asian strain but

4 showed low titres against a highly reactive New York strain (RI/5/57). Titre rises were detected in 5 cases with the prototype Asian strain and in 12 cases with RI/5/57. Human sera collected before the 1957 epidemic gave positive haemagglutination inhibition tests against RI/5/57 in 17 out of 24 patients aged from 17 to 72 years, all of which were negative when tested against Japan/305/57. Rises in haemagglutination-inhibition titres following vaccination against Asian influenza virus were also more readily detected by the use of strain RI/5/57. *H. G. Pereira*

TOKUDA, M. **Studies on the Antigenicity of Influenza Virus isolated in the Epidemic of Early Summer, 1957.** *J. Immunology.* 1958, Aug., v. 81, No. 2, 107–13. [11 refs.]

The serological behaviour of 15 strains of influenza virus isolated in Japan during the early summer of 1957 was studied by means of complement-fixation, haemagglutination-inhibition and serum neutralization tests. These strains were shown to react with influenza A antisera in complement-fixation tests but could be distinguished from former type A viruses by haemagglutination-inhibition. The 1957 strains were divided into 2 groups according to their avidity for antibody and for non-specific serum inhibitors. This grouping was particularly clear in haemagglutination-inhibition tests but some strains showed poor avidity both for haemagglutinating-inhibiting and for neutralizing antibody tested in fertile eggs. Treatment of sera by sodium periodate destroyed the non-specific inhibitors and the author recommends this treatment when avid strains are used in haemagglutination-inhibition tests. *H. G. Pereira*

BRAND, G. Serologische Untersuchungen über die Spezifität des löslichen komplementbindenden Antigens in Influenza-infizierter Allantois-flüssigkeit. [**Serological Examination of the Specificity of Complement-Fixing Antigens in Allantoic Fluids infected with Influenza Virus**] *Zent. f. Bakt.* I. Abt. Orig. 1958, v. 171, Nos. 4/5, 248–63. [18 refs.]

The author has previously [this *Bulletin*, 1957, v. 32, 813] demonstrated the presence of allantoic fluid containing A-prime influenza virus of a soluble complement-fixing antigen (L antigen) which differed in certain respects from the S antigen present in the chorio-allantoic membrane. Rabbit antisera to L antigen fixed complement with A-prime S antigen, but control experiments showed that this was due to the presence of antibody to normal chorio-allantoic membrane antigen. No L antigen could be found in fluids infected with PR8, Lee, mumps or Newcastle disease viruses. Antibody titrations were carried out on 12 human convalescent-phase sera with L, S and V antigens; in 10 sera the titres with the different antigens were in agreement, but in the remaining 2 the S or V titres behaved differently with homologous and heterologous guineapig antisera. Absorption of human and guinea-pig antisera with red cells or virus particles reduced the titre of L and V antibody, but had little or no effect on the titre of S antibody. The results indicate that L antigen is serologically distinct from the S and V antigens, and differs further from the latter in being type-specific. *D. J. Bauer*

BORDET, Suzanne. Virus grippal et phénomène de Shwartzman. [**Influenza Virus and the Shwartzman Phenomenon**] *C.R. Soc. Biol.* 1958, v. 152, No. 2, 365–7.

Rabbits inoculated intravenously with a large dose of purified influenza A (PR8) virus became sensitized (" prepared ") to generalized Shwartzman phenomenon provoked by the subsequent inoculation of *Escherichia coli* culture filtrate, after which the animals died within a few hours with diffuse pulmonary congestion and haemorrhage of the tracheal mucosa. The same virus inoculated intradermally did not sensitize the animals to a local Shwartzman phenomenon. The sensitizing property of the virus was inactivated by heating at 58°C. and was neutralized by virus antiserum. It is suggested that this property is connected with the toxic action of the virus. Influenza virus preparations were inactive in provoking the Shwartzman phenomenon in sensitized animals. *H. G. Pereira*

DREVO, M., SPOUSTA, A., BLASKO, B. & SLONIM, D. Příprava specifického konského séra proti chřipce. [**Preparation of Specific Equine Serum against Influenza**] *Československ. Epidemiol., Mikrobiol., Imunol.* Prague. 1958, v. 7, No. 3, 175–81, 1 graph. English summary (6 lines).

The authors have developed a scheme for immunizing horses with influenza virus with the object of producing high-titre therapeutic antisera. 4 horses were inoculated intravenously with mixed allantoic fluids containing the A_1Čs.51 and A_1Čs.54 strains of A-prime influenza virus, given in doses of 5, 10, 15 and 20 cc. on the 1st, 2nd, 3rd and 10th days respectively, followed by a repetition of the first 3 doses on the 17th, 18th and 19th days. The cycle of immunization was repeated 6 times with intervals of 3–4 weeks. Examinations of blood samples taken at intervals showed that an inhibition titre of 400 against 4 haemagglutinating units of virus, regarded as the minimum requirement for a therapeutic antiserum by Soviet workers, was attained after 2 months and the titre continued to rise to a maximum of 1,024–2,048 after 12 months. Similar results were obtained in 4 horses immunized with a mixture of the BČs.49 and BČs.52 strains of influenza B virus, and the rise in both groups of animals was confirmed in neutralization tests. *D. J. Bauer*

FAZEKAS DE ST. GROTH, S., WITHELL, J. & LAFFERTY, K. J. **An Improved Assay Method for Neutralizing Antibodies against Influenza Viruses.** *J. Hygiene.* 1958, Sept., v. 56, No. 3, 415–26, 4 figs.

A method for the study of serum neutralization of influenza viruses is described. A modification of the technique developed by FULTON [this *Bulletin*, 1953, v. 28, 70] is employed. Virus multiplication is tested in surviving pieces of chorio-allantoic membrane attached to the egg shell and incubated in a synthetic medium, in plastic trays. Normal and heterologous sera were shown not to inhibit virus multiplication when added to the test system in dilutions higher than 1 in 100. The technique was standardized in regard to conditions of pre-incubation of virus-antibody mixtures, period of incubation of inoculated membrane pieces and volume of medium and inoculum. The amount of virus neutralized by a given serum dose was influenced by the final volume of the culture and the authors recommend that neutralization titres should be given as the serum concentration in the final volume and not in the volume of the initial serum-virus mixture. The method was compared with egg and mouse serum-neutralization tests and with haemagglutination-inhibition tests. The final technique developed is described in detail. Results are expressed in terms of both the position and the slope of neutralization curves. The technique is considered to be superior to *in vivo* serum-neutralization tests as regards sensitivity, accuracy and economy.

H. G. Pereira

LEVY, A. H. & WAGNER, R. R. **Increased Avidity of Antibody for Baltimore 1957 Strains of Asian Influenza Virus (P-Q-R Variation).** *Proc. Soc. Exper. Biol. & Med.* 1958, June, v. 98, No. 2, 357–61.

The serological properties of 8 strains of Asian influenza virus isolated in Baltimore were compared with those of the prototype A/Japan/305/57 strain. Haemagglutination-inhibition tests and serum-neutralization tests in fertile eggs were carried out with Baltimore and prototype strains against homologous and heterologous antisera. The Baltimore strains gave stronger reactions than the prototype strain with both homologous and heterologous sera. A higher reactivity of the Baltimore strain was also shown in tests performed in human convalescent and post-vaccination sera. It is concluded that the Baltimore strains were in the R phase of the P-Q-R variation. *H. G. Pereira*

GRAYSTON, J. T.; LOOSLI, C. G.; SMITH, Mabel; MCCARTHY, Mary A.; JOHNSTON, P. B.; LASHOF, Joyce C. **Adenoviruses. I. The Effect of Total Incubation Time in HeLa Cell Cultures on the Isolation Rate** [GRAYSTON, LOOSLI, SMITH, MCCARTHY & JOHNSTON]. *J. Infect. Dis.* 1958, July–Aug., v. 103, No. 1, 75–85. [15 refs.] **II. The Sensitivity of Different Tissue Culture Strains of Cells to Adenoviruses** [GRAYSTON, MCCARTHY, SMITH & LOOSLI]. *Ibid.*, 86–92, 1 fig. [14 refs.] **III. Their Etiological Role in Acute Respiratory Diseases in Civilian Adults** [GRAYSTON, LASHOF, LOOSLI & JOHNSTON]. *Ibid.* 93–101. [28 refs.]

I. Some of the factors affecting the sensitivity of HeLa cell cultures for the isolation of adenoviruses were investigated. The most important factor was shown to be the total length of incubation of the cultures. Infectivity titrations of adenovirus type 3 were carried out with a total incubation of 56 days, with 4 passages of negative cultures every 14 days. Under these conditions, maximum infectivity titres were only reached after 35 to 42 days' incubation. Passages at more frequent intervals did not shorten the period preceding onset of cytopathic effect. Titration endpoints were essentially identical when horse or chicken serum was used in the maintenance medium. From a total of 2,516 clinical specimens 342 adenoviruses were isolated within the first 14 days of incubation and 84 required 15 to 33 days for isolation. Different types of adenovirus varied in behaviour and type 4 usually required a longer period of incubation for primary isolation. Storage of naso-pharyngeal washings at −25°C. for over 2 years did not affect the incubation period required for virus isolations.

II. The sensitivity to adenovirus type 3 shown by 17 cell lines maintained in tissue cultures was investigated. The different lines could be divided into groups of high sensitivity: HeLa cell line II, HEp 2, conjunctiva (Chang) and Detroit 6; moderate sensitivity: HeLa cell lines I and S_3, J-III (Osgood), heart (Girardi), intestine (Henle), liver (Chang), KB (Eagle) and human amnion; and low sensitivity: Detroit 189 (Leighton) and Detroit 116. Monkey kidney, Detroit 98 and MAF fibroblasts did not support virus multiplication unless very large inocula (10^{-2} dilutions or lower) were used. The varying sensitivity of different HeLa cell lines is discussed.

III. The importance of adenoviruses in the aetiology of respiratory infections in adult patients attending University of Chicago clinics and among University students was investigated by virus isolation and serological studies. Virus isolation rates of 1·4% were obtained both from patients in hospital (6 isolations from 439 patients) and from out-patients with respiratory disease (6 isolations from 414 patients). From hospital patients with undifferentiated respiratory disease the isolation rate was 3·8% (5 isolations from 131 patients). The adenovirus isolated included types 1, 2, 3, 4 and 7 [Table I shows only Types 1, 2, 3 and 7] and were associated, with one exception (pneumococcal pneumonia) with cases of pharyngitis or acute respiratory disease. No other cytopathic agents were isolated from any of the patients, even when the materials were tested in 7 different cell lines and in monkey kidney cultures in addition to HeLa cells. Complement-fixation tests performed with acute and convalescent sera showed antibody rises in 4 of 190 hospital patients and in 2 of 112 out-patients. Antibody rises were, with one exception, associated with virus isolations. The case histories of 12 hospital patients are presented. The literature on the subject is reviewed and the authors conclude that adenoviruses play a small role in the aetiology of respiratory infections in adult civilian populations.

H. G. Pereira

DREIZIN, R. S. & TRUBINA, L. M. **Morphological Changes in Tissue Cultures infected with Adenoviruses.** *Acta Virologica.* Prague. 1958, Apr.–June, v. 2, No. 2, 84–90, 16 figs. on 2 pls. [10 refs.]

The cytopathic effect of adenovirus types 3, 5, 6 and 9 on cultures of HeLa cells, embryonic human lung, human tonsils and monkey kidney is described. The effect occurred more rapidly in epithelial than in fibroblastic cells and was characterized by shrinking of the cellular sheets (except with type 9), swelling and rounding of the cells and by typical nuclear alterations. The dynamics of the cytopathic action of each virus type on the different cultures is described in some detail. It was impossible to distinguish the different virus types according to the character of cellular lesions. *H. G. Pereira*

PRIER, J. E. & LEBEAU, R. W. **Cellular Lesions in Monkey Kidney Epithelium induced by Adenoviruses and Viruses of Simian Origin.** *Amer. J. Path.* 1958, July–Aug., v. 34, No. 4, 789–801, 1 text fig. & 6 figs. on 3 pls.

Cellular changes caused by adenovirus types 2 to 7 in cultures of monkey kidney tissue are described and compared with those caused by 8 types of simian viruses. Different types of adenoviruses could be separated into 3 groups according to the character of their cytopathic action: group 1 (types 3 and 4) caused nuclear enlargement and gave rise to intra-nuclear eosinophilic granulation and prominent eosinophilic inclusion bodies; group 2 (type 7) was characterized by intra-nuclear eosinophilic granulation and inclusion bodies, without nuclear enlargement; group 3 (types 2, 5 and 6) was characterized by basophilic inclusions, margination of nuclear material and marked shrinkage and distortion of the cells. Simian viruses, with one exception (SV27) caused lesions that were distinguishable from those caused by adenovirus. A schematic picture of the probable sequence of changes caused by adenovirus type 3 in monkey kidney cells is presented. *H. G. Pereira*

BINN, L. N., HILLEMAN, M. R., RODRIGUEZ, J. E. & GLABERE, R. R. **Antigenic Relationships among Adenoviruses with Appraisal of Reliability of Complement-Fixation Test for Typing Isolates.** *J. Immunology.* 1958, June, v. 80, No. 6, 501–8. [24 refs.]

The serological relationships between adenovirus types 1–7 and 14 were studied by means of serum neutralization and complement-fixation tests. Previous findings on the type-specificity of tests performed with rabbit antisera were confirmed and contrasted with the group-specific reactions obtained in complement-fixation tests with human sera. The complement-fixation test was applied for the typing of newly isolated strains and 194 virus isolates including types 2, 3, 4 and 7 were successfully typed by this method. Types 7 and 7a could not be distinguished by complement fixation. The simplicity and reliability of the complement-fixation test for the identification of adenovirus types most frequently causing epidemics, namely types 3, 4 and 7, are pointed out as advantages of the method for routine clinical and epidemiological investigations. [See also this *Bulletin*, 1957, v. 32, 211.] *H. G. Pereira*

ROSS, E. & GINSBERG, H. S. **Hemagglutination with Adenoviruses. Nature of Viral Antigen.** *Proc. Soc. Exper. Biol. & Med.* 1958, July, v. 98, No. 3, 501–5.

This report deals with the serum agglutination of tanned red cells sensitized with adenovirus antigens [FRIEDMAN and BENNETT, this *Bulletin*, 1957, v. 32, 827]. The antibody revealed by this method gave group-specific reactions but a technique involving the blocking of heterologous antibodies by appropriate virus pools gave type-specific results in 4 out of 8 pairs of sera from patients with adenovirus infections caused by known virus types. The red cell sensitizing antigen was shown to be separable from the virus particles by centrifugation. *H. G. Pereira*

CRAMBLETT, H. G. **Isolation of a Cytopathogenic Agent resembling the CA Virus from an Infant with Croup.** *Pediatrics.* Springfield, Ill. 1958, July, v. 22, No. 1, Pt. 1, 56–9. [12 refs.]

A cytopathogenic agent was isolated from an infant with croup by inoculation of throat swab material into monkey kidney cultures. The cytopathogenic, haemagglutinating and antigenic properties of the agent resembled those of the CA virus previously described in association with cases of croup (CHANOCK, *Amer. J. Dis. Children*, 1957, v. 93, 53; BEALE *et al.*, *ibid.*, 42). Serological tests in acute and convalescent sera from the patient showed a rise in antibody for the agent isolated and for the CA virus and no detectable antibodies for Asian influenza, mumps and adenovirus. *H. G. Pereira*

COLLIER, L. H. & SOWA, J. **Isolation of Trachoma Virus in Embryonate Eggs.** *Lancet.* 1958, May 10, 993–6, 3 figs. [13 refs.]

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 95.]

OKUNO, Y., ISHII, S., KUNITA, N., KUSUMOTO, K., EBARA, S. & FUJITA, T. **Studies on the Cultivation of Poliomyelitis Virus (Type I, III) in the Chick Embryo: A Preliminary Report.** *Med. J. Osaka Univ.* 1958, Mar., v. 8, No. 4, 671–4.

In a previous paper the authors described how the growth of poliovirus in the chick embryo could be detected by its capacity to interfere with mumps virus inoculated subsequently [OKUNO *et al.*, this *Bulletin*, 1957, v. 32, 212]. In the early experiments Type 2 poliovirus was used, but now success has been achieved with Type 1 (Mahoney) and Type 3 (Nakamura) viruses also. Inoculation of poliovirus and antiserum prevented the interference with mumps virus caused by poliovirus alone. Poliovirus was inoculated into the allantoic cavity or on to the chorio-allantoic membrane. No technical details are given but these are promised later in Japanese. *A. J. Beale*

DUNNEBACKE, Thelma H. & REAUME, Marjorie B. **Correlation of the Yield of Poliovirus with Size of Isolated Tissue Cultured Cells.** *Virology.* New York. 1958, Aug., v. 6, No. 1, 8–13, 1 fig.

Individual cells infected with poliovirus (Type 1 Mahoney) were separated by micromanipulation and their yield of virus was determined. It was found that the yield, and the proportion of cells yielding virus, both increased as cell volume increased. This was true of several types of cell: primary human amnion and monkey kidney cell cultures and serially cultivated HeLa and human amnion cells. *A. J. Beale*

Wesslén, T. & Sourander, P. **Changes in Virulence of Attenuated Strains of Poliomyelitis Virus after Passages in Cultures of Human Embryonic Tissue.** *Arch. f.d. gesamte Virusforschung.* 1958, v. 8, No. 3, 360–69. [14 refs.]

5 attenuated poliovirus strains derived by Dr. Sabin were passed in human embryonic lung cultures and then tested for virulence by intracerebral inoculation of rhesus monkeys and for the delayed character described by Vogt *et al.* ([this *Bulletin*, 1958, v. 33, 891], *i.e.* the fact that attenuated strains produce fewer plaques than virulent ones under low bicarbonate agar). The strains used were Type 1 L Sc, P 2149 KP 4, P 2226 KP 4, P 1553 KP 4 and Type 2 P 712 KP 4. The authors point out that these strains are not the highly purified attenuated strains now recommended for incorporation in a living attenuated poliovaccine by Dr. Sabin. After passage in human tissue culture all the strains produced histological evidence of poliomyelitis when inoculated intracerebrally in monkeys except for L Sc and P 2149. P 2226 and P 712 both caused paralysis in 1 out of 2 animals at the 8th and 9th human tissue culture passage. P 1553 had the d+ (*i.e.* "virulent" characteristic of producing almost full number of plaques under low bicarbonate agar) character as supplied. All the strains developed the ability to produce plaques in low bicarbonate agar, but L Sc and P 2149 only produced a few small plaques even after more than 5 passages in human embryo lung cultures.

It is concluded that the passage of attenuated strains in human tissue cultures and their testing under low bicarbonate (acid) agar is a valuable method of testing attenuated strains for reversion to virulence.

A. J. Beale

Hummeler, K. & Ketler, A. **Dissociation of Poliomyelitis Virus from Neutralizing Antibody.** [Correspondence.] *Virology.* New York. 1958, Aug., v. 6, No. 1, 297–9.

The use of fluorocarbons (Freons) for the purification of several types of viruses has been described since their introduction by Gessler *et al.* (*Trans. New York Acad. Sci.*, 1956, v. 18, 701). In this short note their use to dissociate poliovirus from its specific antiserum is briefly described. Using Freon 112 in n-heptane adjusted to 1·30 specific gravity the authors found that after homogenization for $\frac{1}{2}$–1 hour about 65–70% of the virus neutralized by an excess of antiserum was released from combination with antibody.

A. J. Beale

Gastinel, P., Vaisman, A. & Dunoyer, F. A propos de la sensibilisation à un test intradermique à l'égard du virus poliomyélitique Lansing. **[Studies on Sensitization to Intradermal Inoculation of Poliomyelitis Virus, Lansing Strain]** *C.R. Soc. Biol.* 1957, v. 151, No. 12, 2050–51.

Arcuri and Meloni [this *Bulletin*, 1956, v. 31, 800] have described the successful establishment of sensitization to intradermal inoculations of poliomyelitis virus. In this paper, attempts to repeat their work by using the Lansing strain of poliovirus and inducing sensitization in rabbits and in mice failed. *A. J. Beale*

Drake, J. W. **Interference and Multiplicity Reactivation in Polioviruses.** *Virology.* New York. 1958, Aug., v. 6, No. 1, 244–64, 7 figs. [15 refs.]

In this long and detailed paper the author describes experiments demonstrating interference between living poliovirus types, the lack of interference by irradiated polioviruses and multiplicity reactivation of ultra-violet-irradiated poliovirus. Interference in the range of 50–90% is produced by one type of poliovirus if added to monkey kidney, human amnion or HeLa cells $\frac{1}{2}$ to 1 hour before a second type of poliovirus. Cell type and poliovirus type combinations (although interference of Type 3 by Type 1 was not tested) did not affect the interference. In addition to interference the proportion of cells yielding virus was depressed in these experiments.

Ultra-violet light was found to inactivate polioviruses exponentially, but no interference could be detected with inactivated virus containing only 1% of active virus. All 3 cell types were used in these experiments and up to 2 hours allowed for the establishment of interference. The adsorption rate of ultra-violet-inactivated virus was similar to that of fully infectious virus. Ultra-violet-inactivated virus did show evidence of multiplicity reactivation. This was shown by the fact that as the multiplicity increased there was a disproportionate increase in the number of infected cells. This multiplicity reactivation was not due to differences in adsorption rate, time of appearance of plaques or photoreactivation, but was really due to the reaction between more than one ultra-violet-inactivated virus particle in the cell. *A. J. Beale*

Lycke, E., with the technical assistance of Eva Olsson & Britt Hall. **Interference between Poliomyelitis Virus and Coxsackie B or ECHO Viruses.** *Arch. f.d. gesamte Virusforschung.* 1958, v. 8, No. 3, 351–9.

Interference by poliovirus of other types of poliovirus, Coxsackie B2 and 3 and ECHO 5, 6 and 7 is described. When a cell population of 10^8 was used it was found that 10^4 TCD50 of Type 3 poliovirus caused profound interference with ECHO types 5, 6 and 7 inoculated 18 hours later. With 10^4 TCD50 of Type 1 poliovirus 8 hours were required to establish interference to 100 TCD50 of Type 3 poliovirus but only 1 hour to the same dose of Coxsackie B3. With an 18-hour period to establish the interfering strain it was found that the initial dose of interfering virus and dose of challenge virus affected the level interference. Thus a low challenge dose was interfered with more profoundly and a large dose of interfering virus was more effective than a small one. *A. J. Beale*

SUGAI, T. **Studies on the Propagation and the Interference Phenomena of Group A Type 2 Coxsackie Virus in Developing Chick Embryo.** *Med. J. Osaka Univ.* 1958, Mar., v. 8, No. 4, 685–94, 1 fig. [10 refs.]

Poliovirus Type 1 was isolated from the spinal cord of a fatal case of poliomyelitis and Coxsackie A type 2 from the faeces. Attempts were made to pass the Coxsackie A 2 strain in chick embryos. Serial passage inoculating chick embryo leg suspension into the yolk sac was unsuccessful. Alternate mouse and egg passage was successful as was passage in chick embryos that had received 2·5 or 5 mgm. of cortisone into the yolk sac. Virus propagation was assessed by 2 methods: (a) titration in suckling mice, (b) establishment of interference with the growth of mumps virus inoculated into the allantoic cavity. Virus multiplied after inoculation by any route being present in chick embryo tissue and allantoic fluid. Interference was not established till 2–3 days after Coxsackie virus inoculation and continued to rise for the next few days. The interference method was a useful but less sensitive method of detecting the virus in the chick embryo than back titration in suckling mice. There was no interference with the growth of other myxoviruses tested (Influenza A PR8 and FM1, Newcastle disease virus, and HVJ [Sendai]) except for influenza B Lee strain.

A. J. Beale

ORFILA, Jeanne. Lyophilisation du virus E.C.H.O. 9. [**Lyophilization of ECHO 9 Virus**] *C.R. Soc. Biol.* 1958, v. 152, No. 3, 500–501.

The author showed that after lyophilization virus ECHO 9 retains its cytopathogenic power in tissue culture and its pathogenicity for suckling mice.

COLLIER, W. A. & BOOL, P. H. **Infection Experiments with Parapoliomyelitis (Col Sk) Virus in Dogs.** *Trop. & Geograph. Med.* Amsterdam. 1958, Sept., v. 10, No. 3, 245–8.

"Dogs are susceptible to infection with Col SK virus; in adult animals it may have a symptomless course. Inoculation of their blood, milk and faeces in mice causes death or immunity. The serum of infected dogs contains neutralizing antibodies."

CHOU, P'ei-An. **Hemagglutination of Japanese B Encephalitis. I. Preparation and Properties of Dried Hemagglutinin.** *Chinese Med. J.* Peking. 1958, Aug., v. 77, No. 2, 162–8, 2 figs. **II. Study of the Inhibitor in the Mouse Brain.** *Ibid.*, 168–73.

I. A haemagglutinating antigen was prepared from mouse-brain infected with Japanese encephalitis virus, by benzene extraction in the cold, and subsequent drying *in vacuo* [the precise method of drying is not clear]. 48–72 hours' extraction gave the highest titres [the claim that a change in infectivity from 2/5 to 1/5 mortality in mice is significant cannot be accepted]. Petroleum ether but not chloroform could be used instead of benzene. Storage of the dry antigen (not *in vacuo*) at 4°C. gave a 16-fold drop in titre after 3–5 months, while almost all activity was lost after storage for 5 months at 22°C. In suspension it could be stored without loss of titre for 7 days at 4°C. but for less than 24 hours at 22°C. The dry antigen in suspension could be frozen and thawed 4 times without loss in titre, while a high-speed supernate antigen in buffered saline was destroyed after 1 freezing. The dry antigen was found to agglutinate adult fowl, sheep and cat erythrocytes as well as baby-chick cells; the titres with cells of different fowls varied considerably. Haemagglutination conditions of *p*H 6·3–6·5 at 8°C. are recommended. There was great variation in the activity of antigens prepared from different strains of Japanese encephalitis virus. [The preparation of antigen from high passage-level Nakayama strain is claimed to be new but has been a commonplace in many laboratories for years. It is notable in this paper that while the high-speed centrifugation method of antigen preparation produced an antigen from 9 of the 10 strains of virus tried, the dry antigen method made an antigen from only 5 of the 10 and all the latter antigens were of lower titre than the corresponding high-speed supernate antigen.]

II. Centrifugation at 10,000 r.p.m. for 1 hour, but not 2,000 r.p.m. for 10 minutes, sedimented the inhibitor but not the haemagglutinin. An antigen destroyed by freezing could be partially restored by re-centrifugation. Much more inhibitor was found in infected mouse-brain than in normal brain. Extracts of brain in buffers of *p*H 6·5 contained much more inhibitor than the corresponding extracts at *p*H 8·4. Tubes with partially or wholly inhibited haemagglutination were found to show normal haemagglutination if shaken and then allowed to re-sediment. The inhibitor was found to have no neutralizing effect on the infectivity of the virus.

C. E. Gordon Smith

KODZA, Helen & JUNGEBLUT, C. W. **Effect of Receptor-Destroying Enzyme on the Growth of EMC Virus in Tissue Culture.** *J. Immunology.* 1958, July, v. 81, No. 1, 76–81, 2 figs. [11 refs.]

The strain of encephalomyocarditis (EMC) virus used in these studies produced cytopathogenic changes on HeLa and L cell cultures. When cultures of HeLa cells were treated with receptor-destroying enzyme (RDE) of *Vibrio cholerae* before virus inoculation, cytopathogenic changes were prevented. Further experiments showed that this inhibition of virus multiplication was due to a direct action of the enzyme on cell receptors, preventing adsorption of virus; there was no evidence of any activity on the virus itself or on the process of intracellular multiplication. The enzymic destruction of cell receptors was specific in the sense that RDE-treated HeLa cells were of unimpaired sensitivity to Coxsackie or poliomyelitis virus infection, and treatment of HeLa cultures with other proteolytic enzymes did not affect susceptibility to EMC virus. Enzyme-treated HeLa cells gradually reverted over a period of 4 days to the normal level of sensitivity to EMC infection, suggesting that the specific cell receptors were capable of regeneration.

In L cell cultures, adsorption and subsequent growth of EMC virus was not affected by enzyme treatment, suggesting that the virus is capable of utilizing different types of specific receptors in different host cells. L cells failed to adsorb RDE from *V. cholerae* extracts, whereas with HeLa cells adsorption was rapid and followed by elution; the kinetics of the reaction were very similar to those of EMC virus adsorption and release from HeLa cells [this *Bulletin*, 1958, v. 33, 415].

[The experimental system described here may be a useful simplified model for studying the protective effect of RDE against virus infection *in vivo* which has been reported by many workers.] *Derek Hobson*

SCATOZZA, F. & CASTRUCCI, G. Il frazionamento dei costituenti cellulari applicato alla ricercadel virus fisso della rabbia. Nota IV.—Ulteriori indagini sul comportamento del virus presente nella frazione nucleare. [**The Fractionation of Cellular Components applied to Research on Fixed Rabies Virus. IV. Further Researches on the Behaviour of Virus present in the Nuclear Fraction**] *Giorn. di Microbiol.* Naples. 1957, Nov.–Dec., v. 4, No. 3, 166–74, 1 fig.

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 36.]

SCATOZZA, F. & CASTRUCCI, G. Il frazionamento dei costituenti cellulari applicato alla ricerca del virus fisso della rabbia. Nota V.—Ulteriori indagini sul comportamento del virus rilevabile a livello dei mitocondri. [**Fractionation of Cellular Constituents as applied to Research on Fixed Rabies Virus; V. Recent Investigations on the Behaviour of Virus Recoverable from Mitochondria**] *Giorn. di Microbiol.* Naples. 1957, Nov.–Dec., v. 4, No. 3, 193–200.

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 36.]

PICKENS, E. G. & LUOTO, L. **Tissue Culture Studies with Colorado Tick Fever Virus. I. Isolation and Propagation of Virus in KB Cultures.** *J. Infect. Dis.* 1958, July–Aug., 103, No. 1, 102–7, 3 figs.

[An abstract of this paper appeared in the *Tropical Diseases Bulletin*, 1959, v. 56, 35.]

IMMUNITY

BURKE, J. F. & MILES, A. A. **The Sequence of Vascular Events in Early Infective Inflammation.** *J. Path. & Bact.* 1958, July, v. 76, No. 1, 1–19, 10 figs. [23 refs.]

The inflammatory response of the skin of guineapigs to the injection of 9 pathogens was studied by using inocula which would produce the smallest lesion convenient for quantitative skin work. In the infections with *Staphylococcus aureus, Streptococcus pyogenes, Corynebacterium ovis, Clostridium welchii, Pseudomonas pyocyanea* and *Escherichia coli* capillary permeability and stickiness of capillary endothelium showed a transient increase in the first half-hour and then a larger increase which was greatest at 3–4 hours. The maximum area of permeability in the second phase varied directly with the dose of bacteria and was equal in extent to the fully indurated lesion at 24 hours. The area of increased permeability which persisted at 5 hours corresponded to the area of necrosis. A diphasic response was also elicited by *Proteus vulgaris, Corynebacterium diphtheriae* and *Listeria monocytogenes* but the relationship between the area of increased permeability and the size of the mature lesion varied. Tissue leucocytosis and induration were slight at first but continued to increase after the decline in capillary permeability, showing that the capillary walls did not react to the colloidal dye used in the permeability experiments in the same way as to blood cells and fluid. The authors feel that this discrepancy and the lack of any marked inflammatory reaction during the first hour, which is supposed to be the decisive bactericidal period, show a need for further work on the place of vascular permeability in the defence against local infection. *Sheila McDonald*

MILES, A. A. & MILES, Ellen M. **The State of Lymphatic Capillaries in Acute Inflammatory Lesions.** *J. Path. & Bact.* 1958, July, v. 76, No. 1, 21–35, 12 figs. (10 on 3 pls.) [26 refs.]

A method of outlining the lymphatic plexus in the ears of guineapigs and mice is described in detail and was used to show that lymphatic occlusion only took place in the central necrotic area of mature inflammatory lesions produced by the injection of bacteria, bacterial toxins or turpentine. Viable cocci were found in large numbers outside this area of lymphatic occlusion in mature staphylococcal lesions. In early staphylococcal and streptococcal lesions during the period when the local extent and the amount of systemic spread is determined there was no evidence of any lymphatic occlusion.

These findings agree with the work of PULLINGER and FLOREY (*Brit. J. Exp. Path.*, 1935, v. 16, 49) and BARER (*ibid.*, 1952, v. 33, 123) and show that lymphatic blockage is not an effective defence mechanism in the early stages of bacterial infection. *Sheila McDonald*

TAYEAU, F. & MARQUEVIELLE, J. Caractère spécifique de la seconde phase de la réaction de précipitation antigène-anticorps. [**Specific Character of the Second Phase of the Antigen-Antibody Precipitation Reaction**] *Bull. Soc. Chimie Biol.* 1958, v. 40, Nos. 7/8, 1107–15. [20 refs.]

The specificity of the second phase of the antigen-antibody reaction involving the actual precipitation of the complex was demonstrated by 2 different methods.

The first approach made use of the fact that an antiserum after removal of associated lipids retains its immunological properties, but its ability to form a precipitate with its antigen is either retarded or completely inhibited. From this premise, it was reasoned that if the second phase is specific, then the time of formation of an antigen-antibody precipitate would not be influenced by the presence of a mixture of a second antigen and its corresponding lipid-free antibody. This proved to be the case when applied to diphtheria and tetanus toxins and their respective horse antisera. These conclusions were supported by the further observation that a mixture of diphtheria toxin and its lipid-free horse antiserum retarded the time of precipitation of a mixture of this same toxin and its corresponding rabbit antiserum (and *vice versa*), as would be expected due to the formation of a mixed aggregate.

The second approach involved the use of ^{131}I-labelled antitetanus and anti-diphtheria globulins, prepared by iodination in *p*H 8 borate buffer followed by dialysis, initially against water and finally against physiological saline. The antitetanus globulin (which was 5 times as radioactive as the anti-diphtheria globulin) combined with the tetanus toxin to yield a precipitate after 2 hours at 37°C., whereas the corresponding diphtheria toxin precipitation required 4 hours. They could thus be separated from mixtures by centrifuging at appropriate intervals and after washing with saline and drying, their count rates were determined. With various combinations of these antigen-antibody systems, involving both labelled and unlabelled antitoxins, it was conclusively demonstrated that both systems precipitated independently of each other. These results strongly support the theory that the second phase of the precipitation reaction involves specific forces. *R. Thomas*

NAITO, M. **Studies on the Formation of the Complement. 1. On the Effect of Plasmapheresis upon the Complement Activity.** *Med. J. Shinshu Univ.* Matsumoto. 1957, Sept., v. 2, No. 3, 269–86, 3 figs. [10 refs.] **2. On the Relation of the Complement Value with the Residual Nitrogen Content of the Blood Serum.** *Ibid.*, 287–99, 1 fig.

MYRVIK, Q. N., SOTO-FIGUEROA, Eva, NAFF, G. & HENELT, E. **Studies on Antibacterial Factors in Mammalian Tissues and Fluids. II. Cofactor Requirements of a Serum Bactericidin for** *Bacillus subtilis.* *J. Immunology.* 1958, Aug., v. 81, No. 2, 118–22. **III. Serum Bactericidin Levels for** ***Bacillus subtilis*** **in Myocardial Infarction, Pneumonia and other Diseases of Man.** *Ibid.* 123–5, 1 fig.

The bactericidal effect of rabbit serum towards *Bacillus subtilis* was lost after 48 hours' dialysation against distilled water or physiological saline. The effect was restored by the addition of rabbit or bovine serum dialysate which contained bicarbonate ions. There was no change in the bactericidin level of serum of rabbits immunized against *B. subtilis.* Sera from patients in the acute phase of certain diseases also showed bactericidal activity against *B. subtilis* but calcium ions as well as bicarbonate ions were essential for this system.

The bactericidin level of human sera was raised from the normal value of 2 units per ml. to levels of 32–64 units per ml. in patients with lobar pneumonia, myocardial infarcation or metastatic carcinoma. No significant rise was found in other conditions including congestive cardiac failure, diabetes and myxoedema but the number of patients in this group appears to be very small.

[For Part I in this series, see this *Bulletin*, 1955, v. 30, 825.] *Sheila McDonald*

GREEN, D. M. **The Effects of Nitrogen Mustard (Methyl Bis (β-Chloroethyl) Amine HCl) on the Immunological Response of the Rabbit. I. The Effects of Nitrogen Mustard on the Primary Response to a Bacterial Antigen.** *Brit. J. Exper. Path.* 1958, Apr., v. 39, No. 2, 192–8. [11 refs.]

Rabbits were injected intravenously on each of 4 successive days with 1 mgm./kgm. of nitrogen mustard. Each rabbit received a single intravenous injection of a formolized suspension of 100 million *Salmonella typhi* at a time which varied from 72 hours before the start of the nitrogen mustard course, to 24 hours after its completion.

In the animals injected with *Salm. typhi* before the nitrogen mustard, antibody production was not delayed or, at the most, was 24 hours later than in control animals. The attainment of the maximum titre was delayed although it was not reduced. Antibody production in animals injected 24 hours after completion of the course was delayed by 5 days although the time of maximum antibody titre was less affected.

The nitrogen mustard caused a leucopenia which was greatest 48–96 hours after the end of the course and lasted for 7 days. It is thought that the delay in the time of appearance of antibody and its maximum production may be related to the leucopenia, possibly through a slowing down of phagocytosis of the antigenic material. *J. Nagington*

CLARINGBOLD, P. J. & SOBEY, W. R. **Studies in Anaphylaxis. III. Re-Examination of Scores for Anaphylaxis using Four Inbred Lines of Mice.** *Australian J. Biol. Sci.* 1958, Aug., v. 2, No. 3, 434–41, 1 fig.

Miscellaneous

HILL, A. B. **The Experimental Approach in Preventive Medicine. Lecture I. The Problems of Experiments in Man. The Harben Lectures, 1957.** *J. Roy. Inst. Pub. Health & Hyg.* 1958, July, v. 21, No. 7, 177–85. [14 refs.] **Lecture II. Controlled Trials of Vaccines.** *Ibid.*, 185–96, 1 diagram. [11 refs.] **Lecture III. Influenza and the Common Cold.** *Ibid.*, Aug., No. 8, 209–18.

The practical and ethical difficulties which can arise when human beings are the subjects of controlled experiments in the field of preventive medicine were discussed in the first of the Harben Lectures of 1957 by Professor Bradford Hill. Practical difficulties were considered with particular reference to the problems involved in demonstrating the association between rubella in pregnancy and subsequent congenital malformation, and that between tobacco smoking and cancer of the lung. Ethical difficulties were considered with particular reference to the early treatment of prematurity with high oxygen concentrations and the later observed risks of retrolental fibroplasia.

Where experiment is impossible, recourse must be made to controlled and well designed observation of relevant events, but the possibility of experiment in man to resolve problems in preventive medicine must always be considered first as the potentially more efficient approach. Only if practical or ethical reasons make experiment impossible should controlled observation be used. In view of his wide experience in both methods we should do well to note Professor Bradford Hill's warning that " the experimental approach would often be possible if only its importance, and the true ethical issues involved, were more clearly grasped ". He cites many instances where answers might be obtained to questions, at present unanswered, by experiment or observation and the distinction between them is well drawn in a paragraph which must be quoted in full:—
" A true experiment, both practicable and ethical, is likely to give an answer that may justifiably speed up the rejection or acceptance of a measure of prevention. Therein, indeed, lies clearly one of the great assets of the experimental over the observational approach. With the latter there is, as I stressed before, greater scope for uncontrolled variables to have crept in unperceived and to have produced the observed association. There is, therefore not only greater scope for false deductions honestly made but every opportunity for biased or interested parties to invent ingenious ways of explaining the association and thereby to confuse opinion and delay social action. The experiment is not immune but it allows less latitude. Yet illogically and ignorantly it is so often liable to be attacked as unethical."

The second lecture dealt with controlled trials of vaccines. That strictly controlled experiments are essential in this field is really indisputable; departure from some pre-arranged scheme of allocation of subjects at random to " inoculated " and " uninoculated " groups is likely to lead to both errors and difficulties in assessing the value of a vaccine. The major source of such errors was considered at some length; in the lecturer's opinion the use of volunteers for an inoculated group and non-volunteers for the " uninoculated controls " is the most dangerous pitfall. Groups so composed are unlikely to be comparable so that the ultimate comparison of 2 groups treated differently combines both differences due to the vaccine under test and differences due to factors differently represented in volunteers and others. The ways in which volunteers may differ from others may be simple—such as in age, sex and social class—or complex and undetectable. Thus they may be more health conscious and avoid risks normally accepted by others. They may be more intelligent and take more precautions against ill-health than others, or they may have more experience of the condition from which protection is sought. The importance of these selective factors was illustrated with examples drawn from published reports on prophylactic trials of BCG, pertussis and poliomyelitis vaccines.

It was emphasized that the only satisfactory procedure for such trials was to set up, at the start, the vaccinated and unvaccinated groups by some random allocation procedure and to observe subsequently the experience of each group. There are 2 major difficulties. First is the very large number of observations required and the length of the period of observation before final assessment; this introduces administrative problems of conducting trials over large geographical areas. Second is how far the theoretical requirements—that neither subjects nor assessors should know the group to which any subject belongs—can be ethically and practically satisfied. These problems, which differ in degree from trial to trial, were discussed in descriptions of the influenza and whooping-cough trials conducted by the Medical Research Council and the Council's experiments with BCG and the vole bacillus vaccine. This lecture was concluded with some description of the particular difficulties involved in attempting to assess the protective value of the British poliomyelitis vaccine and Professor Bradford Hill gave his reasons for thinking that this trial should have been continued for a further year.

In the third lecture specific trials of protective agents against influenza and the common cold were considered as examples of particular difficulty because of uncertainty in diagnosis. Again practical problems were discussed with many examples drawn from work initiated by the Medical Research Council. In conclusion of this series of lectures 2 important points were emphasized. First, experiment in preventive medicine is not, in the lecturer's opinion, the prerogative of large institutions because the public health worker can find many opportunities to use this method to attempt to find the solution to problems in his own wide field of activity. Second, " the search for knowledge through experiment in man is not a harsh and heartless search " —and " In experiments in curative medicine I have never known the experimentalist, however intense his passion for precision and objectivity, lagging behind his colleagues in compassion for the subjects of his research. I believe that the experimental approach in preventive medicine, to which I have been privileged to devote these lectures, makes no less demands upon our intellectual integrity and upon our sympathies. To the attitude of mind that it comprises, to the problems and controversies that we seek thereby to solve, we must assuredly bring this same blending of passion and compassion."

E. A. Cheeseman

MODELL, W. & HOUDE, R. W. **Factors influencing Clinical Evaluation of Drugs with special reference to the Double-Blind Technique. [Report to the Council on Drugs** (Kautz, H. D., Secretary).] *J. Amer. Med. Ass.* 1958, Aug. 30, v. 167, No. 18, 2190–99, 3 figs. [Numerous refs.]

The forces which may influence data in clinical evaluations of drugs are as follows:—(1) Pharmacodynamic actions, the measurement of which is particularly difficult when it must be in terms of subjective response, *e.g.* degrees of pain. (2) Dosage: if it be too low, no difference between drug and placebo may be revealed; if too high, the effects may be obscured by toxicity. A series of graded doses is the ideal since it serves as a "built-in" measure of the sensitivity of the method and of the discriminating powers of the study population. (3) Choice of subjects: if the aim is therapeutic evaluation then clearly only patients with the disease can provide the answer; if it is to explore and define the action of the drug in man, then normal persons may be more appropriate. Too many phlegmatic subjects may render the trial less sensitive, too many neurotics may compromise it. (4) Use of controls: separate groups may be required or the patient may provide his own control—though if the subjects have progressive disease it may be inappropriate to compare effects at 2 stages of the disease. (5) Collection of data: every effort should be made to minimize the period between the experience with the drug and the recording of the data. Allowing the patient to recall its effects even daily may prove far too insensitive. (6) Sensitivity of the method: a method of clinical evaluation can defend a negative answer only if it demonstrates at the same time that it appreciates the effects of a standard similar drug. Its ability to discriminate between a series of doses gives positive results a quantitative meaning. (7) Placebo actions: these must be guarded against by use of an inert control indistinguishable from the drug under examination. (8) Bias: the double-blind technique is needed to avoid bias in patient or doctor or both. It does not necessarily eliminate bias but is a device for equalizing it. (9) Forces extraneous to the experiment include all external influences which may affect the patient. The aim of randomization is to spread them equally. While the double-blind technique should be used whenever feasible it is not a magic answer to all these problems. If too many extraneous factors, however well equalized, are allowed to weigh in the balance along with the drug, then the experiment may be made too insensitive to reveal the effects of the drug. In such circumstances a negative answer is meaningless. In general a demonstrably effective drug should be used in addition to a placebo to indicate that the trial is competent to measure a positive effect if one exists.

A. Bradford Hill

Book Reviews

ROBERTS, Llywelyn (M.D., M.R.C.P., D.P.H.) assisted by Kathleen M. SHAW, M.B.E. **A Synopsis of Hygiene** (JAMESON and PARKINSON). 11th Edition, pp. viii + 694, 22 illustrations. 1958. London: J. & A. Churchill, Ltd., 104 Gloucester Place, W.1. [60s.]

This book, which dates from 1920, has now reached its eleventh edition, the last 2 being the work of Llywelyn Roberts, Medical Officer of Health for the City of Sheffield, with the assistance of Miss Kathleen Shaw of the London School of Hygiene and Tropical Medicine. The Synopsis is set out in 10 sections (I) Public Health Administration and the Collection of Vital Statistics, (II) Infections and other Conditions of Epidemiological Interest, (III) Hospitals and other Health Services, (IV) Care of Mother and Child, (V) Nutrition and Food, (VI) Atmospheric Pollution, Ventilation, Heating and Lighting, (VII) Water Supplies, (VIII) Removal and Treatment of Waste Matters, (IX) Sites and Building Construction, (X) Public Health Law (England and Wales); there are 3 Appendices dealing with (I) Rules as to Course of Study and Examination for Diplomas and Degrees in Sanitary Science, Public Health or State Medicine, (II) Services associated with Public Health, and (III) Occupational Mortality; and 2 indexes, one to Acts and Regulations and a subject index. This book has had a long reign of well-merited popularity in the world of public health; and it has been an indispensable companion to the study of hygiene for the Diploma in Public Health.

The special feature of the present work is the immense amount of detail which it contains, together with references to most of the important recent publications in journals and reports. The new edition is, in fact, a testimony to the scholarship of its editor; very little of importance to the subject which has appeared in print in any journal or report has escaped his eye; most of the sections have been practically re-written. The transformation has been so great that it is clear that the work is now of an entirely different order from its earlier versions. The change may be expressed, as an over simplification, by saying that the book has evolved from a textbook to a work of reference. A textbook must also be a work of reference; but a work of reference cannot be regarded as a textbook when it no longer systematizes with sufficient simplicity for the student to grasp. In its latest version, the work should have a further long history of success, since no similar source of reference exists to cover so many varied subjects. This, however, emphasizes the need for a further textbook of hygiene which should now be international rather than national in its main presentation, with appendices on legal, administrative and historical aspects, which have local interpretations.

A Synopsis of Hygiene is recommended for purchase for all medical libraries in the English-speaking world.

[For a review of the 10th Edition, see this *Bulletin*, 1953, v. 28, 300.] *C. Fraser Brockington*

Society for General Microbiology. **The Strategy of Chemotherapy. Eighth Symposium of the Society for General Microbiology held at the Royal Institution,** London, April 1958. pp. ix + 360, illustrated. 1958. Cambridge: University Press. [35s.]

This volume is made up of papers on actual and possible advances in chemotherapy. In the first category, the paper of H. B. Woodruff and L. E. McDaniel describes the systematic isolation and testing of new antibiotics. This, the most successful field of chemotherapy, provides new antibiotics active against organisms with acquired or inherent resistance to existing antibiotics. Papers by R. Knox, R. J. W. Byrde and G. C. Ainsworth, L. G. Goodwin, and by R. A. Neal discuss the use of chemotherapeutic substances in the field against bacteria, fungi and protozoa. Knox emphasizes that there are few bacteria not initially susceptible to some chemotherapeutic agent. Development of resistance is sometimes prevented by large doses or by using 2 drugs (synergism), but if the organisms are killed too quickly for the host to form antibodies, he remains susceptible to a second attack.

Fungal diseases are less likely to respond successfully to chemotherapy. Some plant diseases can be treated by simple chemical substances such as copper salts or sulphur, but more complex compounds are also used. In infections with fungi pathogenic to animals remedies are simple but not always effective.

Goodwin's paper on protozoal infections (malaria, trypanosomiasis), coccidiosis and theileriasis is an excellent description of work in the field and difficulties encountered in it. Neal describes amoebiasis from a laboratory level: growth of amoebae in culture and in experimental animals. B. W. Lacey puts forward a scheme of the various types of synergism. He records many interesting examples of synergism and suggests others.

D. W. Woolley stands between the 2 categories. His paper describes substances derived by theoretical criteria which sometimes cure disease. 2 of the diseases are disturbances of animal metabolism involving only one organism; but in the third, mammary cancer of mice, the cancer must be inhibited without harming the animal. The treatment is not always successful but a start has been made.

The remaining papers deal with possibilities of attack on specific metabolic sites. A. Albert discusses removal or introduction of metals by chelating substances which act mainly *in vitro*. However, the chelating activity of isoniazid and the tetracyclines may be partly responsible for their activity. B. A. Newton describes surface-active agents which also act *in vitro*, probably by disorganizing the bacterial surface and destroying the osmotic equilibrium. The site of action of polyoxyethylene ethers which inhibit growth of tubercle bacilli *in vivo* but not *in vitro* may be on the bacterial cell surface.

J. T. Park describes compounds which apparently only occur in the bacterial cell wall. Penicillin may act by inhibiting the formation or use of these compounds and it should be possible to devise other inhibitors with similar selective action.

P. Mitchell points out that a compound penetrating the cell membranes of the invader but not of the host will act selectively on the invader. However, a rational chemotherapy on this basis cannot be expected until the structure and arrangement of animal membranes is better understood.

H. A. Krebs emphasizes that although a supply of energy is essential for growth of all organisms, they obtain energy in basically the same way. With increasing knowledge it is possible that qualitative differences and differences in detail of certain reactions might be found and exploited.

R. Markham discusses compounds sufficiently like normal metabolites to be incorporated into host tissue. The best known compound of this kind is fluoroacetate, but the most useful chemotherapeutically seem to be purine and pyrimidine analogues which are incorporated into bacterial or viral nucleic acids. These analogues are quoted by I. Tamm as the only compounds inhibiting virus growth without inhibiting the metabolism of the host. The prospects of a useful viral chemotherapy are not good, but as more is learned of virus growth they may improve.

E. F. Gale discusses the various points at which protein synthesis, could be inhibited. Chloramphenicol probably acts by inhibition of protein synthesis and penicillin may act at an earlier stage. The tetracyclines also inhibit protein synthesis but the mechanism of their inhibition of growth is not known.

The introduction by D. D. Woods and R. G. Tucker sets out the scope of the symposium and emphasizes the basic principles to be observed in the design of chemotherapeutic agents. The fundamental character of this survey and several of the other contributions will preserve the usefulness of this volume for many years.

M. E. Rowatt

Printed in Great Britain by The Eastern Press, Ltd., London and Reading